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TRANSACTIONS

OF THE

MINNESOTA

State Horticultural Society.

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PROCEEDINGS, ESSAYS AND REPORTS

AT THE

ANNUAL WINTER MEETING,

Held at Minneapolis, January 20-23, 1874,

AND

CORRESPONDENCE AND REPORTS UPON THE EFFECTS OF THE WINTER OF 1872-3 ON FRUIT TREES IN MINNESOTA.

Prepared by JOHN S. HARRIS, Secretary.

SAINT PAUL:
OFFICE OF ST. PAUL PRESS CO.
1874.

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TRANSACTIONS

OF THE

MINNESOTA

STATE HORTICULTURAL SOCIETY.

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DIVISION OF EXCHANGE

PROCEEDINGS, ESSAYS AND REPORTS

AT THE

ANNUAL WINTER MEETING,

Held at Minneapolis, January 20-23, 1874,

AND

CORRESPONDENCE AND REPORTS UPON THE EFFECTS OF THE WINTER OF 1872-3 ON FRUIT TREES IN MINNESOTA.

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LIST OF OFFICERS—1874.

PRESIDENT:

TRUMAN M. SMITH.. ..... St. Paul.

VICE-PRESIDENTS:

E. H. S. DARTT ..... Owatonna.
LEVI NUTTING..... Faribault.
G. W. FULLER..... Litchfield.

SECRETARY:

L. M. FORD ..... St. Paul.

TREASURER:

AMASA STEWART..... Minneapolis.

STANDING COMMITTEES.

EXECUTIVE:

J. S. HARRIS..... ..... La Crescent.
J. C. FLEISCHER..... St. Paul.
P. A. JEWELL..... Lake City.
O. F. BRAND..... Faribault.
J. T. GRIMES..... Minneapolis.

GENERAL FRUIT COMMITTEE:

WYMAN ELLIOT, H. J. BRAINARD, O. F. BRAND, E. H. S. DARTT, THOMAS RAMSDEN, BARRETT TAYLOR, P. A. JEWELL, ROBERT GOODYEAR, JOHN S. HARRIS, A. C. HAMILTON, A. W. SIAS, LEVI HILLIGOSS, F. G. GOULD.

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LIST OF MEMBERS.

Abernethy, W. J.	Minneapolis.
Buckendorf, William	Minneapolis.
Brackett, George A	Minneapolis.
Booth, J. E.	Minneapolis.
Bowerman, J. H.	Faribault.
Brand, O. F.	Faribault.
Carter, T. G.	St. Peter.
Clark, C. H.	Minneapolis.
Chowen, George W.	Minneapolis.
Cannon, William	Minneapolis.
Day, Ditus	Farmington.
Dartt, E. H. S.	Owatonna.
Foster, A. D.	Minneapolis.
Fuller, G. W.	Litchfield.
Fowler, William	Newport.
Fleischer, J. C.	St. Paul.
Ford, L. M.	St. Paul.
Grimes, J. T.	Minneapolis.
Gibbs, H. R.	Minneapolis.
Gould, T. G.	Excelsior.
Humphrey, Otis M.	Minneapolis.
Hilligoss, Levi	Blooming Prairie.
Herrick, H. N.	Minneapolis.
Howe, G. H.	Minneapolis.
Hoffman, James	Minneapolis.
Higgins, S. B.	Baxter, Iowa.
Harris, John S.	La Crescent.
Jewell, P. A.	Lake City.
Kilpatrick, Charles	Minneapolis.
Kramer, J. C.	La Crescent.
Latham, A. W.	Excelsior.
Loring, B. M.	Minneapolis.
Moulton, Thomas	Minneapolis.
Meyer, Ernest	St. Peter.
Nutting, Levi	Faribault.
Prescott, C. A.	West St. Paul.
Ramaley, D	St. Paul.
Shaw, J. N.	Minneapolis.
Stevens, John H.	Minneapolis.
Smith, Truman M.	St. Paul.
Stratton, L. W.	Excelsior.
Stubbs, N. J.	Long Lake.
Stewart, A.	Richfield.
Tyler, Alexander	Minneapolis.
Wilcox, E	Trempealeau, Wis.

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LOCAL AND COUNTY HORTICULTURAL SOCIETIES.

OLMSTED COUNTY HORTICULTURAL SOCIETY,

ORGANIZED MARCH 3D, 1873.

Secretary..... .....S. D. HILLMAN, Eyota.

HENNEPIN COUNTY HORTICULTURAL SOCIETY.

[The list of officers and reports of this society have failed to come to hand.]

HONORARY MEMBERS.

GEO. PEFFER.....	Pewaukee, Wisconsin.
A. G. TUTTLE.....	Baraboo, Wis.
O. S. WILLEY	Madison, Wis.
HON. WM. W. FOLWELL.....	Minneapolis, Minn.

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PREFACE.

The second annual volume of the Minnesota State Horticultural Society is herewith submitted to the friends of horticulture and rural adornment, and all who are interested in the welfare and happiness of the people of our noble State, and with its publication the official connection of the writer with the society ceases. From the time it sprang into existence the writer has been a member of the society, and has attended every meeting held with the exception of two, and during most of the time has occupied an official position, and it is with pleasure that he surrenders the responsibility of an officer, not to retire to private life, but to enter the ranks and join in the battle until the victory is complete.

Of the value of this volume it may not be proper for me to speak. It speaks for itself to tell you that the society is steadily growing in numbers, influence and power for good. This volume contains a number of addresses and essays of great value, and the correspondence and reports are in my opinion one of its best features. The lists of fruits adopted for cultivation are very complete, and fully equal—quality and hardiness to rule—to the lists recommended by our neighbors of the Wisconsin Society.

The last (1872 and '73) winter had severely tried many varieties of fruit, and we expected that many of our friends would be discouraged, and inclined to raise the old cry of "no fruit country," but were happily disappointed, as the contents of this volume will show.

It will be noticed that the men who have taken part in the discussions and contributed papers are with few exceptions the pioneers of fruit growing in this State, and many of them have had large experience in testing varieties in various localities.

We for the first time present a list of Siberians for general planting. No doubt some of the varieties will be discarded in future years and their places filled with other and better, for this class of fruit is showing a capacity for improvement, but

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there is very little risk incurred in planting them freely, as most of the varieties come early into bearing and fruit very abundantly.

For the deference shown me by the society I am very grateful, and feel that to one and all my heartfelt thanks are due.

JOHN S. HARRIS.

LA CRESCENT, Minn., 1873–4.

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NURSERYMEN, FLORISTS AND GARDENERS OF MINNESOTA.

Bunnell, M. C., fruit trees and shrubbery, Money Creek.
Brand, O. F. & Co., general nursery stock of fruit, evergreen and ornamental trees, Faribault.
Bates & Northrop, general nursery, Stockton.
Bowerman, J. H., general nursery, Faribault.
Brimhall, William E., fruit and ornamental trees and garden vegetables, St. Paul.
Brown, James, vegetable garden, La Crescent.
Buckendorf, William E., florist, Minneapolis.
Booth, J. E., florist, Minneapolis.
Cook, C. P. & Co., hardy trees, shrubs and vines, Garden City.
Dartt, E. H. S., hardy apple trees, Owatonna.
Dean, J. H., nurseryman, Blue Earth.
Elliot, Wyman, nurseryman and gardener, hardy fruit and ornamental trees, Minneapolis.
Evans, E. P., nurseryman and dealer, Brownsville.
Ford, L. M., nurseryman and florist, St. Paul.
Fuller, G. W., nurseryman, Litchfield.
Fleischer, J. C., florist, St. Paul.
Goodyear, Robert, nurseryman, Mankato.
Grimes, J. T., small fruits, hardy apple and ornamental trees, Minneapolis.
Gould, F. G., nurseryman, Excelsior.
Gillmore, J. F. nurseryman, Faribault.
Harris, John S., fruit gardener and florist, La Crescent.
Hoffman, James, nursery and shade trees, Minneapolis.
Hermanson, J. A., nurseryman, Otisco.
Jewell, P. A., general nursery, Lake City.
Jordon, E. B., nursery, Rochester.
James, A. T., nurseryman, Smithfield.
Kramer, J. C., general gardener, La Crescent.
Latham, A. W., nurseryman, Excelsior.
Moulton & Co., hardy apples, Minnesota seedlings and Siberians, Minneapolis.
Martin, Lewis, nurseryman, Anoka.
Prentis, D. W. C., nurseryman and dealer, St. Peter.
Stewart, A., nurseryman, Richfield.
Sias Brothers, nurserymen, Rochester.
Slee, John W., nurseryman and florist, Dundas.
Smith, Truman M., small fruits and grape vines, St. Paul.
Waller, G. B., nurseryman, Litchfield.
Wadsworth, H. S., nurseryman, Litchfield.

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INCORPORATION OF THE SOCIETY.

ARTICLES OF INCORPORATION OF THE MINNESOTA STATE HORTICULTURAL SOCIETY.

Know all men by these presents, that we, the undersigned, John S. Harris, of La Crescent, Houston county, John H. Stevens, of Hennepin county, Wyman Elliot, Charles Hoag, J. T. Grimes, A. Stewart, R. J. Mendenhall, Peter M. Gideon and Charles H. Clark, all of Hennepin county, D. A. J. Baker, Truman M. Smith, D. A. Robertson, William E. Brimhall, H. J. Brainard, L. M. Ford and Wm. Paist, all of Ramsey county, and Thomas Ramsden of Washington county, O. F. Brand, A. W. McKinstry and Levi Nutting, all of Rice county, and P. A. Jewell, of Wabasha, E. H. S. Dartt, of Owatonna, Steele county, all of the State of Minnesota, do hereby associate ourselves together for the purpose of becoming incorporated under the name, and for the purposes hereinafter stated, pursuant to the provisions of title and chapter 34 of the General Statutes of said State of Minnesota, so far as the same may be applicable, and do now adopt the following Articles:

ARTICLE 1. This corporation shall be known as the Minnesota State Horticultural Society.

ARTICLE 2. The object of the society shall be to collect, condense and collate information relative to all varieties of fruits, flowers, and other horticultural productions, and dispense the same among the people.

ARTICLE 3. Any person interested may become a member of the society by paying to the Treasurer or Secretary, the annual fee of one dollar, and signing the constitution and by-laws.

ARTICLE 4. The amount of capital stock of this corporation shall be twenty-five thousand dollars ($25,000), with privilege to increase it to $100,000, to be held in shares of twenty-five dollars each.

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ARTICLE 5. The officers of this society shall be as follows: President, one Vice President to reside in each Congressional District of this State, Secretary, Treasurer, and an Executive Committee of three or more members, all of whom shall be elected at the annual meetings of this society, which shall be held on the 3d Tuesday in January.

ARTICLE 6. The principal place of business shall be wherever the majority of the society may hereinafter designate.

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BY-LAWS

ADOPTED AT THE ANNUAL MEETING HELD JANUARY 20-23, 1874.

DUTIES OF OFFICERS.

1. It shall be the duty of the President to preside at all meetings of the society, when present, and to deliver an address at the annual meeting of the same. In the absence of the President, one of the Vice Presidents shall preside in his place.

2. The Secretary shall record all the doings of the society, collate and prepare all communications, etc., for the public press, and pay over all money received from members, or otherwise, to the Treasurer, on his receipt; shall receive and answer all communications addressed to the society; establish and maintain correspondence with all local, county, district and State horticultural societies, and secure by exchange their transactions, as far as possible; to aid the President as an executive officer, in the dispatch of business relating to meetings of the society, and notices of horticultural and similar meetings of general interest, and report to the annual meeting of the society an abstract of the matter that has come into his possession, which shall become part of the transactions for the current year, and shall be prepared by him for the public printer.

3. The Treasurer shall collect and hold all funds of the society, and pay out the same only on the order of the Secretary countersigned by the President.

4. An Executive Committee of five shall be chosen annually, who shall, in connection with the President and Secretary, (who shall be members ex-officio) have in charge all matters pertaining to the interests of the society; shall revise all matter coming into the hands of the Secretary, and pass upon the same their approval before its submission to the annual meeting

5. The Executive Committee may call a meeting of the society at any time and place they may deem advisable for the interests of the society, giving at least thirty days' notice through the public press, and shall in no case incur any ex-

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pense exceeding fifty dollars except by authority of the vote of the society at its annual meeting, when the specific object and the amount so appropriated shall be designated.

6. The President, at each annual meeting of the society, or as soon thereafter as practicable, shall appoint a General Fruit Committee, consisting of one member from each Senatorial District in the State, and it shall be the duty of each member to report upon the fruit crop in his respective district annually; also a limited list of fruits best adapted to general cultivation in the district which such member represents.

7. That committees on vegetables and market gardens; flowers and floriculture; trees for the forest and forest culture, and entomology, be appointed each year, whose duties it shall be to report on their several topics to this society at the annual meeting.

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TRANSACTIONS

OF THE

MINNESOTA STATE HORTICULTURAL SOCIETY.

ANNUAL MEETING HELD AT MINNEAPOLIS, JANUARY 20, 21, 22 AND 23, 1874.

Pursuant to notice given through the Farmer's Union of Minneapolis, and the principal periodicals throughout the State, and in accordance with provisions of the Constitution, the members and friends of the State Horticultural Society met in the Council Chambers of the City Hall, at Minneapolis, at 10 A. M., January 20.

There was quite a large attendance, and an unusual interest shown in the cause of horticulture, and a strong desire to learn how to avoid a repetition of the disasters of last winter (1872 and 1873.)

A table was set up in the hall upon which was spread collections of fruits, flowering plants, seeds for distribution, and samples of wines, jellies and preserved fruits, &c. But the display, though better than we expected, was much inferior to that shown at the annual meeting in this city two years since, and told plainly that misfortunes had overtaken us and dashed many bright hopes to the earth, but like truth, which, "crushed to earth, will rise again," so is horticulture destined to become a grand success in our noble State. Severe winters may visit us, and corrupt and ignorant Legislators may defraud us of our rights, and rings may cripple us for a time, but the fruit-growers of Minnesota are "iron-hearted men," and they are searching for "iron-clad" trees. They have nailed the flag to the mast, and their battle cry is: "Fruit for ourselves; fruit for the millions that will soon people our State; fruit to load our railroad cars and steamboats and send to other lands. We will have fruit or perish in the attempt."

The meeting was called to order by the President, Truman M. Smith, of St. Paul; and the Secretary, J. S. Harris, of La

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Crescent, being out of health, C. H. Clark, of Minneapolis, was chosen Assistant Secretary.

ADDRESS OF WELCOME.

Col. J. H. Stevens, on behalf of Mayor Brackett, extended to the society the following address of welcome:

Mr. President and Gentlemen of the State Horticultural Society:

I am directed by Mayor Brackett, who is unavoidably absent, to extend to each one of you the hospitalities of the city. The citizens of Minneapolis feel honored that the society, in its wisdom, selected this place for the purpose of holding the annual meeting. They have ever taken a deep interest in the glorious cause of horticulture, and they will endeavor to make your sojourn with us pleasant. They doubt not that your deliberations will be attended with much benefit to the State. You have their best wishes and sympathy in all that appertains to your noble calling. They bid you God speed in your undertaking, fully believing that the day is not far distant when the apple, through your efforts, will be to the manor born, while the rose and kindred flowers will be household treasures appreciated by all who are fond of the beautiful.

PRESIDENT SMITH'S REPLY.

Mr. Smith, in his reply to the above, remarked that the society had selected Minneapolis as their place of meeting feeling its great interest in horticulture as evinced by the choice fruits in their markets, and by the ornamental trees, and numerous and well-filled green houses and conservatories and beautiful flower gardens that beautify your many pleasant homes in your young and growing city.

He also thanked the citizens in behalf of the society for their proffered hospitality and kindness.

COMMITTEE ON ARRANGEMENTS.

As the Executive Committee had been unable to prepare a programme for the meeting, a motion was made and carried that a committee of three be appointed to present topics for discussion, and prepare an order of business for the meeting; committee to report at 2 P. M.

A. T. Stewart, of Hennepin, P. A. Jewell, of Wabasha, and Theodore Bost, of Carver county, were appointed.

The Secretary read a communication from G. E. Morrow, Secretary of the Wisconsin Horticultural Society, offering to

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exchange fifty copies of their Transactions for 1873, for fifty of ours for the same year. The communication was accepted and a resolution passed instructing the Secretary to exchange fifty copies of the Minnesota State Horticultural Society Reports for fifty copies of the reports of the Horticultural Society of Wisconsin.

On motion of Mr. Ford, of St. Paul, a committee was appointed and instructed to proceed to the State capitol and secure all the State Horticultural Reports not in use there, and bring them before the society on Thursday morning.

A short time was spent in free conversation, and the society adjourned to 2 P. M.

AFTERNOON SESSION.

The meeting was called to order by Vice President E. H. S. Dartt, of Owatonna, when the following report from the Committee on Topics for Discussion, and Order of Business, was presented by P. A. Jewell:

1. What tests are necessary to fully establish the perfect adaptation of any variety of apples to the peculiar and trying climate of our State.
2. Best sorts for cultivation.
3. Transplanting.
4. Cultivation and protection.
5. Time and manner of pruning.
6. Diseases to which apples trees are liable, and their treatment.
7. Insects injurious to trees and fruits, and the most economical and efficient means of destroying them.
8. Pear culture.
9. Plums.
10. Cherries.
11. Grapes.
12. Currants.
13. Gooseberries.
14. Blackberries.
15. Raspberries.
16. Strawberries.
17. Cultivation of forest trees for timber protection.
18. Deciduous, shade and ornamental trees.
19. Evergreens.
20. Ornamental shrubs and plants.
21. What soils are best adapted to the various kinds of fruits, and what manures promote the most healthy growth.
22. What new kinds of fruit appear worthy of cultivation.
23. Suggestions relative to the granting of premiums at State Fairs.

The report was accepted, and the society proceeded to the discussion of the subjects in the order named.

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PLANTING APPLE TREES.

Considerable discussion followed on the first subject as to the best locality for planting apple trees, and the time necessary to test their hardiness. It was asserted as an established fact that many varieties of trees would grow and produce apples on or near the borders of our lakes and rivers when they would not flourish on the high prairies.

The severity of the last winter on fruit trees had made the question one of great importance as to which kind of fruit trees should be recommended and what tests should be applied. Mr. P. A. Jewell stated that his experience proved that many varieties, such as the Ben Davis, which have come into extensive use, had failed to stand the test of Minnesota climate; that all the samples of fruit we have is but the growth of a remnant of hundreds of fruit trees that we have planted. Because one or two trees out of a dozen different varieties stood the test, it should not be taken as proof of their worth. It is impossible to test any kind of trees with one, five or ten years' growth.

Messrs. Hoffman, Stevens, Stubbs, Dartt, Clark, Bost, Fuller and others spoke at length, and Mr. Clark said he thought that although the last winter was an exceptionably severe one, it was quite safe to assert that any tree that had stood the test of this climate, planted in different parts and in different soils, was sufficient to establish its hardiness. He accordingly presented the following resolution:

Resolved, That this society will not recommend for trial in this State any variety of apple tree that has not stood a test of at least five years in different locations and soils throughout the State.

Mr. Jewell said that he would not object to trying any tree five years, but he would not recommend it for planting in five years—not less than ten years. It was necessary for trees to have a test of that length of time, or at least till they had a test such as only last winter could give.

Mr. James Hoffman thought that dwarf varieties would have to be resorted to yet, since the standard had failed.

Rev. Mr. Fuller thought that last winter was a sufficient test for any tree.

Mr. Bost said that in his vicinity the old trees had been killed and not the younger varieties.

Mr. Jewell offered the following in amendment to Mr. Clark's resolution:

That we do not recommend for general planting in large quantities any variety that has not stood a test of ten years in a variety of soils and situations, and shall have passed through at least one winter of great severity.

Another warm discussion arose on Mr. Jewell's amendment.

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The Secretary, J. S. Harris, offered the following resolution for the amendment:

Resolved, That a test of five or more years in ten or more different localities, and endurance of such a winter as the last without injury, should be a sufficient test of hardship to warrant this society in recommending for general cultivation.

Mr. C. H. Clark thought it was unjust to those who planted trees, to impose such a length of time on any variety of trees before they could be recommended for general use.

The resolution offered by Mr. Jewell was adopted.

Variety of apples next taken up.

BEST SORTS FOR CULTIVATION.

The next subject was the best sorts for cultivation.

It was moved by Mr. Dartt and seconded by Mr. Gould, of Excelsior, that the Duchess of Oldenburg be counted first on the list.

Carried.

It was moved that a committee be appointed to present a list of trees to be regarded the best.

The President appointed Messrs. Jewell, Dartt and Hoffman as such committee.

TRANSPLANTING.

Transplanting was the next theme of discussion. Col. Stevens introduced Dr. O. M. Humphreys, of this city, to the meeting.

The Doctor had not been long in this State, but always had a deep interest in fruit and tree culture. His experience had always favored his preference for fall planting. He always planted immediately after coming from the nursery, and with as many roots as possible. His spring transplanting had not been so successful. The Duchess tree, from his observation, has proved the best. The crabs in sandy soil and in different parts of the State, had proved a failure, although in heavier soil it may do better. His grape vines, of twenty varieties, he always plants deep, and they passed through last winter safely.

Mr. Hoffman had been in the State twenty-six years; sixteen years he had planted forest trees, and five or six fruit trees. He always plants forest trees in fall, and lifts or heals in his fruit trees in fall and plants them in the spring. Duchess he favors best, Haas next, Ben Davis not at all.

Mr. Jewell thought if fruit trees were lifted in the fall they would survive the winter, but all fruit trees should be

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planted in the spring. They should be dug up early in the fall and carefully laid away till spring, when they suffer but little injury in transplanting. It is not safe to take even the hardiest varieties from a nursery and transplant them.

Mr. Gould indorsed Mr. Jewell's opinion of transplanting, but he objected to the manner of burying trees in winter. He recommended a dry place, not putting the body of the tree in earth at all,—by digging a trench on the north side of a hill, and leaning the trees at an angle of 45 degrees, so that the water will not rot the bark.

Mr. Jewell preferred a high and dry location, burying about two feet, digging a deep trench which will take in the trees entirely below the surface. After placing the trees in these trenches he places rafters or ties across the top, covering with a board, then he covers over all with dirt; after a freezing he covers with straw or litter.

Mr. Harris gave his system and experience, which conformed nearly or quite to that of others.

He had transplanted apple trees in the autumn with good success, if it was done early and the soil was not too dry, but preferred to receive trees in the fall and plant as early in the spring as the season would permit. Said his plan for wintering the trees was to select a dry, sheltered place and dig a trench eighteen inches deep and about the same in width and long enough to receive what trees he had.

Then open the bundles and take one tree at a time and remove with a sharp knife all bruises from the roots, cut back the tops to correspond with root and place in the trench, standing at an angle of about 45 deg., and put the earth back over the roots one tree at a time, being sure to leave the work when completed so that water will run from it. By this process had kept his trees for spring planting for many years and never had one injured. If the trees are received from the nursery in very cold weather, the pruning and making ready should be done in the barn or cellar, to prevent their being long exposed to frost.

CULTIVATION AND PROTECTION.

This subject being next taken up, was opened by Mr. Grimes. He believed in deep ploughing with proper pruning, while for protection mulching was necessary, and he would recommend a growth of something like raspberries in parallel rows to trees, as incidental to the same.

Mr. Dartt favored thorough cultivation.

Mr. Jewell believed in thorough cultivation, particularly during the first three or four years. In order to get trees

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well established would commence as early as possible. He warned the society against late cultivation as tending to late growth, thereby jeopardizing the safe passage of the trees through the winter. He would mulch in the fall of the year. There is nothing better than straw, which would hold the snow, taking due caution against injury from mice.

Mr. Dartt had had most satisfactory experience in mulching with earth, sowing oats, and as they grew working them into the soil.

Mr. Hoffman approved of cultivation. Said it kept the soil in condition to receive and retain moisture.

The Secretary said that his experience had favored cultivation up to the last winter, but during that winter his losses had been most severe where the ground was cultivated. Believed liberal mulching would have saved most of his orchard. Had trees of Northern Spy and Perry Russet in grass not materially injured.

Presented the following report from S. B. Klough, Winona county:

"I have an orchard of 65 trees four years planted on high ridge land; soil clay loam. Trees of those varieties nurserymen call hardy, just commencing to fruit. Land seeded to clover last fall. I hauled wheat straw and put it about a foot deep around the trees, and out as far as the roots would reach. Lost one tree, a Dominie, the rest all right. The tree that died had never done well."

PRUNING AND TIME TO PRUNE.

In consideration of this subject, Mr. Dartt would only prune to please the eye. He thought little pruning should be done, and would prune about three feet up.

Mr. Jewell thought that three feet was high enough.

Mr. Grimes thinks the less pruning trees have the better; it should only be done when limbs grow in improper places.

Mr. Howe thought that trees could be shaped in any way desired. If scions are to be cut they should be cut from the tops of the tree. We want the roots to run deep so that we can plow near them, and the tree should be trimmed high up.

Mr. Gould thought that one should use judgment in trimming trees. It was not safe to cut large limbs.

J. S. Harris thought we should not cut off the Transcendent too early; he found budding on Transcendents a failure.

Mr. Jewell thought the trouble with Mr. Harris' failure in budding on Transcendents was in not cutting away the top early enough, which caused bleeding.

A motion was made and carried to adjourn till evening.

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EVENING SESSION.

The President in the chair called the meeting to order at 7 P. M. The Secretary being absent, Mr. Latham was appointed Secretary *pro tem.*

The President then announced the topic for discussion.

THE DISEASES TO WHICH APPLE TREES ARE LIABLE AND THEIR TREATMENT.

The discussion was opened by Mr. Dartt. He considered that the blight affected fruit trees, as disease does the human family. The Transcendent and seedling crab are most liable to blight; the Duchess of Oldenburg and Soulard crab the least. The Tetofsky is not so free from it as the Duchess. The Saxton and Golden Russet also suffered severely from it. He preferred the severity of winters, like the last, to the blight.

Col. Stevens could not agree with Mr. Dartt. He had never heard of any successful remedy for it, but believed that the frosts of winter were worse than blight. It was not generally considered dangerous to fruit trees, as it does not affect them oftener than once in twenty or thirty years. It has been a number of years since the blight made its appearance in Minneapolis. I have heard that a few years since it prevailed to such an extent in Southern Illinois as to threaten the total destruction of the orchards, but has since disappeared.

Mr. Smith had lost two Soulards by the cause of blight—esteems the fruit very highly. Said that until lately Mr. Harris had thought the blight caused by electricity; believed that Mr. Elliot considered it the result of a certain fungus in the atmosphere, but he did not think either supposition entirely correct, as the electricity, according to that theory, would destroy the trees every year. He thought the blight was contagious, and could only be regarded as a disease.

Mr. Gould also thought it was contagious, and was the result of fungus matter in the atmosphere, and there was no remedy found for it yet. He had examined the trees affected with it with a powerful microscope, but could not detect the cause. Stated that his Transcendents were the first to blight.

Dr. Humphreys asked what should be done with a tree in a garden of a hundred others, that had blighted for two or three years?

Answered by Col. Stevens—"Dig it up."

Dr. Humphreys then asked if wood ashes had been used, and further stated that all diseases were self-propagating, and that if the cause of the blight is parasites, a preventive ought

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to be found in disinfectants. We might approximately decide as to this cause by their use. He intended to try on his own grounds a solution of potash or strong lye. Carbolic acid and other similar disinfectants might be tried with probably good effect.

Mr. Stewart has trees with wood ashes thrown around them, and they have suffered as much as others.

Mr. Gould advised cutting off all diseased branches and burning them.

Mr. Jewell does not profess to know the cause of the blight, although he has suffered much from it. His experience with it was more in nursery than orchard. Thought the more rapid the growth of the tree, the more liable to blight; that the disease was transmitted through the atmosphere, and wherever there was a rupture in the bark of the tree there it lodged. The blight attacked some Transcendents 4 or 5 years old, and spread rapidly through his nursery. Would keep Transcendents and Hyslops from the near proximity of a growing nursery, as they are more subject to blight. He also notices that trees not pruned suffered less than those closely pruned. Had used a tree plow to cut the roots of nursery row trees which were badly affected with good success in arresting the disease. He inferred that from arresting the growth of the tree in this way worked the favorable result.

The Transcendents and crabs as a class were most subject to blight, and in the selection of varieties to plant care should be taken as to their kind. Would not recommend setting Transcendents, and other varieties subject to blight, in same orchard with others, as they would be liable to cause it to spread among the others. Had top grafted a Hyslop. The blight killed the body and the tree is now dead. This liability to blight is an objection to using crabs to top work upon, and if used for this purpose all sprouts should be kept away. The Montreal Beauty blights worse than any other.

INSECTS INJURIOUS TO TREES AND FRUITS, AND THE MOST ECONOMICAL AND EFFICIENT MEANS OF DESTROYING THEM,

Was the next topic taken up.

Mr. Brand considered the best way to destroy the aphis was to watch them carefully as they appeared upon the top leaves, and destroy by rubbing between the hands. If left two weeks they will spread rapidly. He suffered much the past season from the borer. By close examination he had been able to detect their first appearance by the incisions made by the perfect insect in depositing the eggs, and the best way to destroy them was to crush the eggs by a pressure on the bark.

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Mr. Stevens had had strong soap suds recommended for the louse, to be applied to the leaves; had tried it and found two applications to work an effectual cure.

Mr. Jewell had tried solution of ammonia and decoction of tobacco, the latter of which he found the best, and would further say that it was the only use for which it was fit.

Mr. Cannon said tobacco water (the leaves to be immersed in it or apply with syringe) is the best remedy I know of.

Mr. Howe suggested evening bonfires, or that a pan of burning tar be placed among the trees as an economical way of catching and destroying insects.

Mr. Dartt regarded the apple worm as the most destructive to the apple in Minnesota and throughout the north-west. Thinks this worm was brought here in barrels of apples shipped from below. Described Weir's trap for catching them.

Dr. Humphreys inquired if the fact of a leaf-louse depositing its eggs on a tree one season would render it more liable to its ravages another year.

Mr. Gould thought it would, from his own observation.

Mr. Stewart said that a tree that was once attacked by leaf-louse is more liable to be attacked by them the next year, as their eggs are left on the branches and are not injured in the winter.

Mr. Dartt inquired if the aphis or louse did not become a fly.

Mr. Gould said they were green when young, but when fully developed they became a black fly not much larger than a louse.

Mr. Stewart had discovered a white grub among his strawberry vines that destroyed them by eating off the roots, and was unable to account for it.

The President thought it was the larvæ (Lachnosterna) of the May beetle, and that soap-suds was the best remedy.

Mr. Jewell said his nursery had suffered considerable from the beetle. The ground that was formerly covered with poplar trees was infested the least. He thought the best remedy was to go through the orchard every day, and catch and destroy them.

At this stage of the discussion Col. Stevens offered the following resolution, which was adopted without discussion:

Resolved, That a committee be appointed by the President to prepare a memorial to the Legislature, requesting provisions to be made for the appointment of a State Entomologist.

Col. Stevens, and Messrs. Dartt and Jewell were appointed such committee.

Discussions resumed.

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Mr. Dartt asked if ants are injurious to trees.

Mr. Cannon considered them the best preservative of the trees.

Mr. Bost thought the ants only infested the trees for a honey substance that the aphis drops when worried, and that this bothering of them might compel them to drain more sap from the tree.

Mr. Jewell moved to consider to what causes are to be ascribed the wholesale destruction of fruit trees the past winter or spring.

Carried.

Mr. Stewart ascribes this loss to the immaturity of the wood and severe freezing.

Mr. Dartt considers the severe freezing alone the cause.

Mr. Stubbs—Caused by severe freezing. Animal life can endure only a certain degree of cold, and the tree, too, has its limit.

Mr. Carter, of St. Peter, thinks the sun somewhat to blame.

Mr. Gould believes the extreme cold did the damage. Saw scions of Flemish Beauty pear last January that were entirely dead, and this before the season had become warm. Grape vines were also killed down in Ohio, eight miles below the lake shore; vines that had never been affected before.

Mr. Brand does not consider the cold altogether the cause, but the dry weather and dry soil were fully as much to blame. On the grounds of Mr. Drew, where he had seen the hardier varieties dead, it was dry soil throughout. He had seen the Ben Davis killed by cold weather, but not the Duchess of Oldenburg or Fameuse.

Dr. Humphreys questioned whether the drouth of the preceding summer and fall had not impaired the vitality of the trees and rendered them easily overcome by the cold.

Mr. Jewell believes the extreme cold weather the cause of this loss. In his locality it was quite wet in the fall, and trees could not have been killed by dryness of soil. Thinks the roots of unmulched trees were killed by excessive cold, and not by lack or excess of moisture. Thinks there is a certain lowness of temperature at which any variety would be killed. Trees ripen up and stand the winter better if the ground is dry.

Mr. Dartt knew of hardy varieties like Transcendents to have root killed while the tender ones had not. The plum he had introduced from Wisconsin stood the winter, while the Illinois variety succumbed to it.

Mr. Brand stated that J. O. Milne had not lost a single tree of Ben Davis; and this, he considered, was due to the fact that in that part of the State (Sauk Centre) there were heavy

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rains in the fall, and the same was true of all trees in wet places.

The President said that the experience throughout New England during the last winter was that trees the best protected by snow suffered the most. In his own orchard the Minor plum, that had winter killed three or four years ago, came through the last winter all right. Those trees that he cultivated latest in the season suffered most. Trees are injured by sudden changing. Immature wood, and the early and severe frost was the cause of his loss.

Dr. Humphreys apprehended a severe winter and protected some tender varieties with wrappings, and they came out all right.

Mr. Bowerman never knew trees covered with snow to survive cold weather any better than those entirely exposed.

Mr. Jewell thought the drouth had nothing to do with winter killing.

Meeting adjourned to 9 A. M. to-morrow.

WEDNESDAY, JANUARY 21ST.

Society met at 9 A. M. President Smith in the chair.

The discussion was resumed on the cause of the destruction of fruit trees last winter, and was opened by Mr. Harris of La Crescent. He had lost a great many fruit trees last winter. Some varieties were almost entirely killed, apparently root killed, as they did not sprout again from the roots. Among those that suffered the most was Northern Spy. Lost one Transcendent; some others made but feeble growth because a portion of the roots were injured. The Duchess stood the winter well. Lost one or two Red Astrachan and Tallman Sweet trees. His opinion was that the wholesale destruction of trees last winter was from exceeding dryness of soil the previous fall, and the severe cold the winter following. He had trees of Perry Russett, Northern Spy and Early Harvest that had been exposed to dripping water and the shade of sheltering buildings that escaped injury. Some trees that had grass or weeds around them came through very well.

When he discovered that the winter had been so unfavorable for trees, he had caused the following circular to be published in the Farmers' Union, asking for information, the replies to which will be published under the head of Reports.

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CIRCULAR.

LA CRESCENT, May 22d, 1873.

To the Fruit Growers of Minnesota:

We have just passed through the hardest winter known to the oldest citizens of this State, and there were peculiar circumstances attending it that will make it a test winter for many years, if not for all time. The winter set in early and dry, and frost penetrated to a great depth before any considerable snow fell. Many losses have occurred to our fruit growers by the destruction of trees and plants. We desire to profit by the severe test by collecting such facts from the people as will enable us to place before them a list of fruit trees that are *iron-clad* under all circumstances, and therefore solicit from you answers to the following questions as soon as possible:

1st. What varieties of apples have you planted in this State?

2d. What varieties have come through the last winter without receiving any injury in root, trunk or branches?

3d. What varieties have received no injury to fruit buds?

4th. What is the nature of your soil? What is the exposure? What cultivation and protection do you give?

5th. Are you raising any seedlings that are perfectly hardy, and are any of them good enough to take the place of Russets, Seek-no-Furthers, and other varieties that we are obliged to discard?

6th. Are you raising pears, and have you any variety that stood the test of last winter without injury?

7th. What is the hardiest and best strawberry for your locality?

8th. What two varieties of grapes are the best with you?

Notes upon plums, cherries and other fruits will be acceptable.

You are further informed that this society intends to be represented in the meeting of the American Pomological Society, to be held in Boston next September, and you are requested to furnish the delegates with specimens of your fruit for the exhibition. Please correspond with the officers of this society, and they will make known to you the time and manner of sending them.

JOHN S. HARRIS,
Secretary of Minn. State Horticultural Society.

Mr. Latham—The cause of this universal loss must be some one common to the whole State. In some localities the soil was dry, in others wet; in some the ground was frozen deeply, and in some the snow fell deeply before freezing. The only common cause was the severe and long-continued cold, which he thinks must be the grand destructive cause.

Mr. Hoffman does not consider cold the only cause of this loss. Has noticed that where his soil has been dry, the roots have been easily killed Has lost shade trees from this cause. As a preventive for this cause of loss, cultivate thoroughly and keep the ground moist.

Col. Stevens asked if his, Mr. Hoffman's, experience was not that for many years all the tops and branches died off, and sprouts came again from the roots.

Mr. Hoffman replied that he had thoroughly tested with fruit and shade trees, and found if mulching was plenty there was no danger of root killing. He had sometimes sustained

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injury to trees in severe winters by top killing, and they sprouted again from the root. He lost only two trees last winter. His soil is sandy, and cultivated, and slopes east.

Mr. Ford related his experience, which is very interesting but unfortunate, and would leave the impression that his was a very unfavorable locality for fruit trees.

His loss last winter was from root killing. He had a Transcendent on one side of a walk and two Tetofskys on the other. The Tetofskys are dead, and the Transcendent is alive and bore full last year. He wants to know what made the difference between the two sides of the walk if the crab is not the hardiest.

Mr. Hoffman answered: Because there is a pond of water near the walk where the Transcendent stands.

Mr. Fuller, of Litchfield, said his nursery was on soil of light sandy loam, in a most exposed place on open prairie. Wherever snow covered the trees they were preserved, and where most exposed they perished; the same was true of White Elm, Mountain Ash, &c. It was the hard and repeated freezing of the sandy soil that killed them.

Mr. G. P. Peffer, of Pewaukee, Wis., was introduced as a delegate from the Wisconsin Horticultural Society, and afterward elected an honorary member, and invited to participate in the debates.

He said it is always well to consider the soil and situation in which trees were planted. Cold affects a tree very much the same as heat, and will in like manner evaporate the sap; and a root being exposed to a certain degree of cold is certain to perish. He had ascertained by actual measurement before and in time of a hard freeze that the root and trunk of a tree will shrink nearly one-third by freezing; probably by the evaporation of the sap. Related his experience with ashes. The soil in his nursery was clay loam, and very stiff. He applied ashes liberally to a block for trees and incorporated them with the soil by plowing and harrowing till the soil became loose, pliable, and would not retain water. The trees on this ground grew well and looked better than any others he had; but last winter they root-killed, while those on land not prepared with ashes were not so injured. The varieties killed were the hardiest he had.

Mr. Harris thought the application of ashes on clay soils made them more porous, and in the absence of fall rains it was in a condition to invite deep freezings, which extracts the sap from the roots; there being no moisture in the ground when they thaw out, death must ensue. The roots freeze harder when encased in a dry substance than a wet. A bucket of water would freeze over in a cellar before vegetables would receive injury.

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Mr. Bost said it is thought in his locality that one principal reason why the losses were so great was because the soil was so wet.

Mr. Bowerman, of Pioneer Nurseries, Faribault, said that part of his nursery was on high and dry ground, and some parts of it on low grounds; on high grounds lost less by root killing than on low. Lost but few young trees by killing of root, but lost heavily by tops dying.

Mr. Howe, of Hennepin county, said some think the loss is from dryness, some from wet, and some from cold. He thought the cause was the extreme changes of the weather; the extreme cold of January, and the mildness of March, followed by sudden freezing and thawing rapidly.

Mr. A. Stewart, Hennepin county, says the sole cause is because the root is not hardy enough. Has experimented on this subject fifteen years. Roots must be perfectly hardy or thoroughly protected.

Mr. Ford offered the following resolution, which was adopted:

Resolved, That names of places of different speakers be given in the report.

Mr. Stewart said his experience was mostly confined to Hennepin and Le Sueur counties.

The Secretary moved that we suspend the regular discussion of topics, as he had some reports to present. Seconded by Mr. Ford.

The Secretary read a report from the Olmsted county Horticultural Society. The Society was organized on the 3d of March, 1873, with the following officers:

President—Wm. Somerville, Eyota.
Vice President—J. B. Clark, Rochester.
Secretary—S. D. Hillman, Eyota.
Asst. Secretary—J. W. Mason, Rochester.
Treasurer—J. M. Westfield, Rochester.

The regular meetings are held the third Saturday in each quarter. Have already discussed apples, grapes, small fruits, &c.

On motion, the report was adopted, and ordered to be placed on the minutes.

The Secretary read the following extract from a letter received from Mr. D. W. Prentis, of St. Peter:

"I wish to say that there is a man here from Finland, where the thermometer goes down to 56 degrees below zero. He says high up in the mountains, or at quite an elevation, where there is no rain all winter, they raise fine apples, and winter apples at that, and also nice pears. I thought that such varieties would stand our climate. I learn that twenty-

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five Finland emigrants are at the Reception House in West Brainerd. Have written to the postmaster to have him obtain an interview with them and see if these statements were confirmed. I also wished to learn if some one could not bring out some scions.

"Would it not be proper to have the statements investigated, and if wise, ask the Legislature to appropriate a sum sufficient to obtain such fruits as are hardy in that extremely cold climate?"

Moved that the communication be received and placed on file to be embodied in the proceedings.

The Secretary then read his annual report to the society.

ADDRESS OF THE SECRETARY OF THE STATE HORTICULTURAL SOCIETY.

Mr. President and Gentlemen of the Minnesota Horticultural Society:

The official position in which I am placed by your favor makes it my duty and privilege to address you at this time, reporting to you the progress we have made during the past year and the hopes and prospects of the future.

THE LAST WINTER.

The winter of 1872-73, for long continued and extreme cold storms and fierce winds, stands without a parallel in the history of our State. During the autumn preceding, the rainfall was very light, and was followed with but light falls of snow and hard freezing, that continued over most of the State until the 7th of January, when we experienced the most fearful snow and wind storm known within the memory of the oldest inhabitants, which continued for three days, and carried mourning and sorrow into many homes, and caused great loss and suffering to stock in the new and sparsely settled parts of the State. Previous to this storm the ground was frozen dry to the depth of three to five feet. The winter had set in earlier than usual, and but few farmers and gardeners had given proper mulching or protection to their trees and plants. The whole winter ranged extremely cold and the spring was rather backward, and a long drouth prevailed in some sections of the State.

What do we witness as the result of these unfavorable influences all combined in one year's experience? Many orchards of great promise were ruined, and many others were seriously injured, while a very few were comparatively unharmed.

With the view of drawing out as many facts as possible, to ascertain the extent of the injury, and the varieties of apples

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that were not injured, or that were injured the least, I caused a circular letter to be published in the Farmers' Union of May 24th, 1873. In reply a number of communications were received from different parts of the State, and many others have reported through the columns of the Union. From this correspondence I am enabled to report that the Duchess of Oldenburg and Tetofsky are damaged the least.

The Red Astrachan, Haas, Fameuse, Tallman Sweet and St. Lawrence, rank next best among those varieties which are in general cultivation, and they stand for hardiness about in the order they are named. The Siberian crabs and a number of the hybrids or seedlings of the Siberian have generally proved to be perfectly hardy. I also find that some other varieties have come through all right where they had been grafted upon crab stocks. I have heard of a few instances where the Early Harvest, Northern Spy and Perry Russet did not show any injury.

The fire blight has prevailed quite extensively, and is doing serious damage to the varieties of Siberian crab. The losses of last winter to the apple and the blight which is affecting both the crab and apple trees to a certain extent have had a tendency to discourage a few of our farmers, but the professional horticulturists and many of the amateur fruit growers appear to be hopeful, and freely express the opinion that in spite of losses and failures we are gaining ground, and that our efforts will eventually be crowned with success. Doubtless we shall learn lessons from the past year's experience that will prove of great advantage to us in the future. I received but two reports of orchards that did not sustain any serious injury from the winter. One in Winona county, which is on a high ridge of land, seeded down to clover, and with trees mulched around with wheat straw to the depth of one foot, contained sixty-five trees, in varieties nurserymen term hardy, and lost but one tree, a Dominie. The other was in Fillmore county, on high prairie land cultivated in corn. The stocks left standing over winter came through splendidly. Orchards have generally fared best that were not cleanly cultivated. As the greatest losses arose from root-killing, (and much of that could have been prevented by mulching) this meeting should take a positive stand and prompt action upon the matter, and propose some method by which hardy roots and stocks for grafting and budding upon may be raised by our nurserymen, and in quantities sufficient to meet our present requirements.

SUMMER MEETINGS.

The officers of the society did not deem it to be expedient

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to call you together for meetings of exhibition or discussion during the last summer, but a call was made for a meeting to be held in St. Paul, upon the evening of the second day of the State Fair, which, from causes beyond our control, was very near a failure. No business was transacted except the appointment of examining committees and determining where the annual meeting should be held.

THE AMERICAN POMOLOGICAL SOCIETY.

The American Pomological Society held their last biennial session in September last, at Boston, Mass. Our society was represented in the meetings by but one delegate, Wyman Elliot, of Minneapolis, from whom we expect a report. Owing to the earliness of the meeting and the unfavorable condition of the fruit crop, we could not make an exhibition that would convey any correct idea of the advance we have made in horticulture, and therefore did not consider it expedient to attempt to show our fruits. The next meeting is appointed to be held in Chicago, in 1875.

FALL EXHIBITION.

The exhibition of fruits, flowers and vegetables, at the State Fair, held in St. Paul in September last, was a fine success; in most particulars far surpassing our most sanguine expectations. I think this was the result, in the first place, of a determination on the part of our fruit growers to show that all was not lost, and they would fight it out on that line, *i. e.* the hardy stock that is left, and in the second place, from the liberal additions that have been made to the premium lists since the influence of the State Horticultural Society has been brought to bear upon the State Agricultural Society in giving the management of the horticultural department over to our direction.

The premium lists in the floral and vegetable departments should be thoroughly revised, and the result would be an increased number of exhibitors, a lively competition and an improvement in the culture of the articles exhibited for premiums.

Some additions ought to be made in the fruit department. In the past, the Siberian crab has shown a capacity for great improvement, and we now have some of its seedlings and hybrids that are perfectly hardy.

The fruit is received with favor for home consumption, and is fast coming into general use for pickles and sauces, and will probably soon have a commercial value next to the common

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apples. I think they ought to be placed upon the premium lists in a separate class and advanced to the position which they merit. Some varieties are reported to be long keepers and others superior for eating from the hand.

MEETINGS FOR DISCUSSION.

One meeting per year is not sufficient to do justice to the questions which are demanding our attention, but it has been found difficult to get the members out to more. I do not believe this is the result of a want of interest on their part. Our State is large, the summers are short, and the fruit growers and farmers are crowded with work, and considerable time would be consumed in going to and returning from a summer meeting, while the traveling expenses incurred by those living in remote parts of the State is an item of considerable importance. Perhaps a practical remedy for this would be the division of the State into districts, and holding summer meetings alternately in the several districts. I think this hardly practicable at present, but it can be brought about in time.

SEEDLINGS AND NEW FRUITS.

Nothing in the line of seedlings or from the new varieties has come up for our notice since the last annual meeting, and from the few varieties of seedling apples exhibited at the last State Fair, it is evident that some of the competitors for favor will never again be heard from. The Wealthy of Excelsior still maintains its reputation for hardiness, and doubtless could with safety be placed upon the list for general cultivation. Experiments with seedlings are being made by individuals in various parts of the State, and some parties are conducting them upon a system that cannot fail to make our future in apple growing equal to, if not in advance of, any State in the Northwest. (I would refer you to a communication from Peter M. Gideon, of Excelsior, published in the December number of vol. for 1873 of the Horticulturist, p. 369.)

The Wealthy originated with and was brought to notice by Mr. Gideon. He has now under cultivation several hundred seedlings that bear marks of being a cross between the Crab and Wealthy Duchess, Blue Pearman and other superior varieties that endured the severity of last winter without injury. If any improvement can be made it must be by hybridizing our best varieties of apples with the crabs or the variations which come about through cultivation, or the planting only of home-grown seeds of the hardiest varieties. Necessity is called the mother of invention. May not our necessity prove

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a blessing in developing for us and our posterity a better class of fruits?

COUNTY HORTICULTURAL SOCIETIES.

We are not in correspondence with or in receipt of reports from any local or county horticultural societies except the Olmsted County Horticultural Society, which was organized last March, and is prospering. I believe there are some other such societies in the State, and there ought to be more, and if abstracts of their transactions could be secured and published in our annual volume they would add to its interest and usefulness, and by complying with the requirements and provisions of the acts of the Legislature of last winter, providing for the printing and distribution of the transactions of the State society, would be entitled to receive copies of the same.

Another plan would be for the State society to assume the position of a parent society, and have auxiliary societies organized in every favorable locality, these societies to be required to hold summer meetings for exhibition and discussions, and to send delegates and full reports to each annual meeting of the State society.

After the adjournment of the last annual meeting the State Legislature passed an act to provide for the printing and distribution of our society reports. Under this act the State printer has published the history and an abstract of its proceedings from its organization, Oct. 3, 1866, to the annual meeting, inclusive, in January, 1873, in a neat and closely printed volume of two hundred and eight pages. Aside from the aid granted, we have incurred a debt of $225 in collecting material and preparing it for the printer. In order to liquidate this debt and defray the expense of sending one or more delegates to the winter meeting of societies in adjoining States, and to procure seeds, plants, cuttings and trees for experimenting with, I recommend that we adopt a resolution of thanks to the last Legislature for the aid and encouragement they have extended to us, and memorialize the present Legislature, now in session at St. Paul, and ask them to grant us an additional annual appropriation of $300.

Insects injurious to vegetation are rapidly on the increase, and a State entomologist is loudly called for. We can do no less than to ask the Legislature to provide for one.

Cranberry culture is awakening a lively interest in some of the States. There is no State so well adapted for it as Minnesota. Shall we encourage its growth, or let our swamps and marshes remain unsightly and unprofitable wastes. It is unnecessary to remind you of the importance of planting

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shade and ornamental trees and wind-breaks. The people have aroused themselves and are inquiring what they shall plant. In conclusion, I recommend that this meeting take the necessary steps to secure for the next annual meeting a full report of the forestry of Minnesota, to include the evergreen and deciduous timber and ornamental trees that are found flourishing in the State, the places where they are found, and the soils most natural for their perfect development.

I would also recommend the appointment of a committee of three or more practical horticulturists, to co-operate with a like committee from the State Agricultural Society to revise, correct and amend the premium lists in the Horticultural department of the State Fair.

Respectfully submitted,

J. S. HARRIS, Secretary.

On motion of Col. Stevens, the report was accepted and adopted.

The report of the Committee on Varieties being called for, Mr. Jewell, (the chairman being absent), presented the following lists, but declined to make a full report, as the attention of the public had been called to many varieties he had recommended at previous meetings, some of which had failed.

FIRST LIST.

Apples for General Cultivation.

1. Duchess of Oldenburg.
2. Tetofsky.
3. Wealthy.
4. Stewart's Sweet.

SECOND LIST.

Apples for planting in most favorable localities.

1. Haas.
2. Fameuse.
3. Plumb's Cider.
4. Walbridge.
5. St. Lawrence.
6. Red Astrachan.
7. Saxton.
8. Price's Sweet.
9. Perry and Golden Russets.

On motion, the report was received.

The Secretary thought the committee should present a list of Siberians.

Mr. Jewell said he was supposed to be interested in crabs, seedlings and hybrids, and he did not think it well to introduce them personally.

Moved by Mr. Gould and seconded by Mr. Ford, that a committee of three be appointed to prepare a list of Siberian crabs and seedlings for general cultivation, to be presented this afternoon.

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Carried.

The chair appointed on this committee, Thos. Moulton, P. A. Jewell and Mr. Harris.

Mr. Jewell did not feel disposed to act on this committee for reasons before stated.

The President said as they had buried the crabs at a previous meeting, and Mr. Jewell had been the first to start them, he ought now to be among the first to resurrect them.

Mr. Harris said that he had officiated at the burial, but had found that the things were prematurely buried, before dead, and would cheerfully help dig them out.

Moved and seconded that the report on apples be taken up, one variety at a time, for adoption.

Carried.

THE DUCHESS OF OLDENBURG.

Mr. Fuller In Meeker county this apple has been killed very badly, and he hardly knows of any trees of this variety now in healthy existence.

Mr. Grimes has lost no Duchess since he grafted on hardy roots.

Moved and seconded that the Duchess be adopted for general cultivation.

Dr. Humphreys asked Mr. Fuller if his trees root-killed.

Mr. Fuller said they did.

Mr. Ford stated that with him the Duchess had killed, while the Transcendent, only eight feet distant, lived, and he intended to dig up and destroy the Duchess.

Mr. Ditus Day, of Dakota county, had 20 or 30 Duchess that did not winter-kill; did not know of but one tree in his locality that had been injured.

Mr. Fuller stated that the Duchess being slow in starting may be the cause of its killing with him. In reply to question by Dr. Humphreys, he said some of his trees were planted in loam, and some in sandy soil.

Mr. Jewell (Lake City) does not consider that in his part of the State there is any danger of this variety being injured except by root-killing; had seen them top-killed in this locality and at Mankato. In the southern part of the State the Duchess is free from root and top killing, but in the northern some have top-killed. In the extreme northern part of New York they were more successful in growing apples than in the southern part of the State.

Mr. Peffer, of Pewaukee, Wis., said that as he came up to this meeting he stopped at Sparta, Wisconsin, and he thought that the winter had been more destructive to trees there than

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in Minnesota. In the whole place there was but one bearing tree left, and that was a Duchess.

Mr. Hoffman said that on digging some Duchess that looked feeble he found that the roots they were grafted on were dead, and their life was supported simply by roots that sprouted from the scion.

Mr. Carter, of St. Peter, said a neighbor lost several Duchess, ten years, while the younger trees were not hurt. Mr. Knight's fine Red Ash are dead.

Mr. Ford, St. Paul, said he dug along the rows of Transcendents and found them good, while the Duchess near by were dead.

Mr. Stubbs, Long Lake, said in his locality there was scarcely an old Duchess that passed through the winter without injury and most of them were destroyed. He planted ten trees ten years ago that were bearing, and every one is now dead or nearly so, but he believed the trouble was from root killing.

Col. Stevens suggested mulching as the best preventive of root killing.

Mr. Morrison said that Mr. Ford had set out twenty Duchess trees for him and warranted them to be hardy, but they had all died after bearing a little. So had some green gage plum trees all killed.

Mr. Gould, Excelsior, thought this variety should be placed first on the list. Any tree that passed through last winter, with branches above the snow uninjured, had had a sufficient test. He could show any one 1,000 trees on south shore of Lake Minnetonka, seven and eight years old, in good condition for a crop of fruit next year.

Thomas Moulton, of St. Anthony, had 250 trees, four to seven years old. They stood on ground not cultivated, both sand and clay; 75 of them bore last year. Had 1,000 three years old, and those that suffered most were where the snow was from three to four feet deep. Had seen Transcendents top and bottom killed.

Mr. Hoffman said it looked very much as if two varieties of Duchess had been planted out; one died, the other lived.

The President said he had had the Duchess planted since 1861, and had never lost but one tree.

Moved by Mr. Ford and seconded by Mr. Jewell—"That 'in favorable localities' be added to the resolution to adopt."

Motion lost.

The original motion was carried, Mr. Ford voting No.

TETOFSKY.

Mr. Ford said his experience with the large apples was that they had better be dug up and destroyed.

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Moved by the Secretary that the Tetofsky be recommended for cultivation in village and city gardens. He said it was peculiarly adapted for such places, as it was hardy enough, and a small and compact tree and early bearer, but on account of its diminutive size it does not make a very good appearance where planted promiscuously in the orchard with standard apples. Thought the fruit too perishable for shipping long distances to market.

Mr. Stevens, of Minneapolis, favored the Tetofsky. He was very much attached to it, as the first apple he had raised was of this variety. Hoped the motion of Mr. Harris would not prevail, because the tree was equally valuable for the farm as the city garden.

Mr. Jewell, Lake City, said his experience with it was very much the same as with the Duchess. Had 7,000 two-year old trees, and they came out all right, as did others in his part of the State. Believed when they died it was from root killing, and if they had been mulched they would have survived.

Mr. Bowerman, of Faribault, said he did not lose any in the nursery. They were not mulched, but weeds were allowed to grow to protect them.

Mr. Fuller said he felt more favorable to this variety than the Duchess. In his experience, seventy-eight miles west, on the St. Paul and Pacific railroad, he had but few trees that were not affected in his nursery. Some tree roots, as the Haas, were all killed, while others were not much hurt, and Tetofsky looked best of all.

Mr. Grimes hoped the society would not confine Tetofsky to towns, as the country wished some. His Tetofsky had proved all right, has never had one killed back a bud; was one of four varieties that bore last year.

Mr. Howe, of Minneapolis, and Mr. Ford, of St. Paul, suggested that the society recommend what location to plant this tree in as favorable to success.

The question being called for on the Secretary's motion, it was lost, and a motion to recommend it for general cultivation was carried.

WEALTHY. P 33

Moved and seconded that the Wealthy be recommended for general cultivation.

Mr. Peffer being called upon for his experience, said that P. M. Gideon, of Excelsior, left him some of the Wealthy to propagate; also some of the Molly, which latter is proving to be worthless. Said that they had got somewhat mixed in sending out, and that some had probably received the latter

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under the name of the Wealthy, and it would certainly injure under so severe a test as the last winter, but he had been able to get the two varieties separate, and the trees had made a good growth last year, a proof that they were not much injured. The tree grew thorny but the fruit is of good flavor.

Mr. Thos. Moulton bought a lot of scions of Mr. Gideon, cut the 8th of last March, after the severe winter, and they succeeded better than crab scions cut at same time. Lost very few.

Mr. Gould, of Excelsior, said he lives 1 1-2 miles from the original tree; had examined it several times every season, and was satisfied that the tree was hardy enough for this climate. The old tree bore last year. He thought it was inclined to blight badly. It is an average grower with much vigor, more than the Duchess, and the best variety to graft into the top of other trees he knew of. Has no blight on his own, but Mr. Gideon's are badly injured, but several hundred of his two-year olds escaped last season. It made growth last year from its extreme terminal bud, evidencing its hardiness. The fruit was above medium size, and presented the best appearance of any he had seen. Its form is perfect, its color good, and is second rate in quality. Season about same as Fameuse, November and December. Owing to a mistake in labelling scions of this and the Molly—which is a worthless variety—a little confusion had arisen, but the last winter had pretty effectually used up the Molly, and those acquainted with the two could easily distinguish the true Wealthy from the other.

Question. Is it not generally considered a crab or a hybrid?

Ans. It is not.

Col. Stevens considered the Wealthy of great merit as a market apple on account of its beautiful form, color and appearance. He had five trees and they had never injured on his grounds either by blight or winter killing. It is evidently the coming apple of the Northwest.

Mr. N. J. Stubbs, Long Lake, has a very favorable opinion of it. It is the hardiest seedling in his knowledge. Some trees grown on their own roots have stood as well as any crab.

Mr. Latham, Excelsior, has observed that a large growth of this variety from a bud has passed through this winter, and grown from the tip, while other varieties considered as hardy have been more or less injured.

Mr. C. H. Clark had planted 150 yearling trees and he lost all of them, and that, too, alongside of the Duchess and Tetofsky. He observed that Gideon's own old trees were nearly used up, although the young trees looked well, and thought all varieties of trees should be renewed often in this climate.

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Mr. Gould remarked that the old tree was nearly used up by blight the year before, and the present appearance of the tree is ascribable to that cause, and that probably Mr. Clark's 150 trees were the Molly.

Mr. Harris said he thought that the vitality of new varieties of trees was impaired by the excessive cutting of scions, and they were in a condition favorable to taking the blight. The condition of the old tree was a natural consequence, after being robbed of so many scions, and did not argue anything against its value. Although the facts stated in the discussion proved nothing derogatory to the planting, he would move to amend the motion by making it read "recommended for further trial. His motion was afterward withdrawn."

Mr. Ford personally had had no experience with the Wealthy, but on Mr. Slate's grounds on the St. Paul and Pacific Railroad, he found it badly diseased. Mr. Martin's, at Anoka, were also killed.

Mr Latham—Very many trees have been sent out by mistake for Wealthy that were Molly, which is not a very hardy variety.

Mr. G. P. Peffer considers it well worthy of cultivation. Has blighted but little the past year.

Mr. Hoffman got some scions and trees that were genuine, and they are doing well.

Mr. Grimes has two trees standing on his grounds four years old, making a good growth every year and not killed.

Mr. Jewell said trees on his ground top-worked on crab have stood well and grown from the terminal buds. Has seen the variety in many places, and it shows itself to be hardy and successful. Thinks the reason it has blighted so badly at Gideon's is because there are so many blighted crabs in the same orchard.

Mr. Clark believes the Wealthy worthy of general cultivation in this State, notwithstanding his losses.

Moved and carried to recommend the Wealthy for general cultivation

Adjourned till 1½ P. M.

AFTERNOON SESSION.

The President called the meeting to order.

During the forenoon Mr. J. E. Booth, of Minneapolis, brought in and placed on exhibition in the rooms occupied by the society, some very beautiful flowering plants, which were in bloom. Among them were specimens of Chinese

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Primrose, Libonia Florabunda, Zonale Geraniums, Lycopodiums Erectum, Erianthus, &c. There was also an elegant boquet of cut flowers upon the table. Mr. Booth received many high compliments for the elegance and fine condition of his plants. He is the proprietor of the Minneapolis greenhouses on Tenth street, and also a professional landscape gardener.

Truman M. Smith, of St. Paul, had on exhibition some fine samples of grape wine and crab cider, also some jars of cider jelly. Some fine varieties of apples were on exhibition.

The Secretary presented some reports, but they were not read for want of time, it being necessary to remove to the Tribune rooms for the afternoon. They will be found under the head of Reports and Miscellaneous Papers.

Discussions resumed.

STEWART'S SWEET CALLED UP.

Mr. Stewart, the originator of the variety, being absent, a motion was made and carried to postpone the action upon this variety until more members were present who are acquainted with it, and proceed to the discussion of the list for cultivation in favorable localities.

HAAS.

The Secretary moved that this variety be placed first on the list. Seconded by Mr. Jewell.

Carried.

PLUMB'S CIDER.

Mr. Harris said he had not had much acquaintance with this variety, having no trees that had commenced bearing; but from the appearance and growth of his young trees he thought it would be safe in his (Houston) county, and would therefore move its adoption as second on the list.

The motion received a second, and Mr. Peffer spoke favorably of it for Wisconsin, and Mr. Jewell said that it was about equal in value and hardiness with the Haas.

Without further discussion, it was adopted.

FAMEUSE.

Mr. Jewell, of Lake City, gave his experience with this variety. Said that in favorable localities it would stand, and that previous to the winter of 1872 and 1873 it had stood well

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enough to pay for itself many times over. We could not afford to leave out so good an apple.

Dr. Humphreys, Minneapolis, had an experience with one tree which had grown and borne fruit in 1872, but the winter of 1873 destroyed it.

Mr. Grimes, of Minneapolis, said he had cultivated it with encouraging success, and raised fruit up to season of 1872, but the winter of 1873 destroyed them, but not his confidence in the tree. He should continue to plant and grow the Fameuse whether this society recommended it or not, believing that only an exceptionally cold winter would injure them.

Mr. Clark had a limited experience with this variety. With him it stood next to Duchess and Tetofsky; could recommend it for favorable localities.

Mr. Harris, of Houston county, said he was a strong advocate for the Fameuse. Considered it the safest apple for Minnesota, that had been thoroughly tested, after the Duchess, Tetofsky and Haas. It was an early and abundant bearer, and was almost sure to live long enough to bear fruit. He had seen trees of it that were nearly dead revive and become fruitful. He was fortunate with this variety last winter; most of his trees were deep planted and not cultivated, and were not generally seriously injured. None were entirely destroyed.

By a decided vote the Fameuse was placed on the list.

The next variety under consideration was the

WALBRIDGE.

Mr. Peffer, of Pewaukee, gave his experience with it in Wisconsin. Said he knew trees twenty-five or more years old not killed last winter and bore fruit last summer. It is very valuable for its keeping qualities, and stands second to none for growth in protected localities.

Mr. Harris said his personal experience with this variety did not extend far enough back to recommend it for general cultivation under the rules we had adopted for our government in this meeting. He had about twenty trees under cultivation. Found it an easy tree to transplant, and with the exception of a single tree, it came through the last winter as well as the Duchess and better than some of the crabs. For many years he had been looking about for a late keeping apple, and his attention being called to the Walbridge he had taken every opportunity to secure information about it, and finding that it was universally doing well in Wisconsin, as far north as the latitude of Southern Minnesota, had concluded to give it a trial, and had the utmost confidence in its value for Houston county.

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Mr. Jewell had been personally familiar with the Walbridge for several years. Found it generally regarded valuable. Considered it more hardy than Fameuse and second only to the Duchess. In this State his familiarity with it extended only during the last four years. He regarded it as the best late keeper yet offered to us.

Mr. Moulton set a few trees three years since. They had generally stood well.

Mr. Ford said he was satisfied to recommend it for favorable localities, and it was finally placed on the list.

THE ST. LAWRENCE

Was next taken up.

Mr. Day had fruited this variety in Dakota county the past season; considered it hardier than Fameuse or Fall Stripe.

Mr. Stubbs said he had planted a few in Hennepin county which stood pretty well until the last winter, but he had not much confidence in it for his locality.

Mr. Jewell said that while this variety was not as hardy as some, it was too valuable to throw over, it coming early into bearing, and he believed it would succeed in favorable localities.

Mr. Harris spoke in its favor, and moved to place it on the list.

The motion was carried.

PRICE'S SWEET.

Mr. Jewell would place this apple upon about the same footing as the Saxton, and thought by all means it ought to be placed on the list.

On motion to that effect, it was placed upon the list.

RED ASTRACHAN.

The Secretary moved to place this variety on the list to recommend for general cultivation.

Mr. Grimes dissented from this idea, in that his experience placed it inferior in hardiness even to the Fameuse.

Gen. Nutting, of Faribault, objected to placing it on the list for general cultivation. Even if hardy its season was near the same as the Duchess, and it was so slow coming into bearing, and bore so little, that it was an unprofitable investment.

On putting the motion it was voted down, and a motion to place it on the dead list was carried, with but two opposing votes.

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SAXTON OR FALL STRIPE.

Mr. Stevens highly recommended this variety for hardiness as having in his own experience rewarded the labor bestowed on them by producing bountiful crops of fruit while very young. On his grounds it passed the winter of 1873, and bore well the past season.

Mr. Latham, in his experience and observation, took issue with Mr. Stevens, reporting reveral instances on Lake Minnetonka, where the Saxton had proved a failure.

Messrs. Brand and Nutting, of Faribault, and several others were in favor of placing it on the list, not so much for its perfect hardiness, but because wherever planted we are pretty certain to enjoy its fruits.

On motion of Mr. Harris, it was placed on the list.

PERRY RUSSET

Was next discussed and objected to on account of the long time before it comes into bearing, and on motion of Mr. Ford it was placed on the dead list.

GOLDEN RUSSET.

This variety was taken up, and after a brief discussion, placed on the dead list.

PEWAUKEE.

Mr. Jewell moved to place this variety on the list for favorable localities.

Mr. Peffer, of Wisconsin, who originated this variety, rather modestly spoke highly of this variety. Said it was a seedling of the Duchess of Oldenburg, a good keeper, and of fair quality; fruit nearly size of Duchess.

Mr. Gould, of Excelsior, had not had experience with this tree beyond the past three years, and in his nursery, out of some 250 trees, about three-fourths stood the severe winter of 1873. He thought favorably of the tree for protected localities.

Mr. Stubbs, of Long Lake, had about the same experience as Mr. Gould. Prior to the last year's experience the tree killed back some each winter, and finally to the ground in 1873, but believed his trial was not a fair test, he having forced the growth by excessive cultivation, getting a growth of three or four feet each year.

Mr. Grimes said he had some experience with ten trees of

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this variety for three years, and regretted that his opinion must be recorded against its hardiness, though he should not discard it without another trial.

Mr. Jewell said his experience was somewhat similar to those gentlemen who preceded him.

Upon a vote being taken, this variety was finally placed on the dead list.

STEWART'S SWEET.

Amasa Stewart, the originator of this valuable variety, being present, it was again taken up. He stated that it was a fall apple, that it originated from seed some fourteen years since, and it had proved hardy with him through all winters past; bore fruit in Blue Earth, Le Sueur and Hennepin counties, and did not know of any trees having been killed by winter.

Mr. Stubbs said he was acquainted with the tree, and he fully corroborated what Mr. Stewart had said.

Also Mr. Hoffman said the same.

Mr. Gould considered it a better variety than almost any other sweet apple, and hardier than even the Duchess.

Mr. Clark, Hennepin county, had cultivated Stewart's Sweet the past four years, and would bear testimony to its perfect hardiness. The tree is beautiful growth, and second to no sweet apple in quality.

Mr. Ford's testimony sustained that previously given.

On motion, it was placed on the list for general cultivation.

The apple list being finished, it was moved that the committee on Siberians be called upon to report.

Carried.

SIBERIAN APPLES OR CRABS.

Mr. Jewell, for the committee appointed to prepare and present a list of Siberian crabs and their hybrids for general cultivation in the State of Minnesota, said: "Our committee submit for your consideration the following list of Siberian apples arranged in four classes:"

First Class.

Early Strawberry,
Orange,
Beecher's Sweet,
Minnesota.

Second Class.

Conical,
Quaker Beauty,
Maiden's Blush,
Hutchinson's Sweet,
Meader's Winter.

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Third Class.

General Grant, Hesper Blush.
Aiken's Striped Winter.

Fourth Class.

Aiken's Green Winter, Transcendent,
Hyslop.

A motion was made to receive the report.

Carried.

The list was taken up and discussed, one variety at a time, and finally adopted as reported, with the exception of the Hyslop, which was voted unworthy of general cultivation.

Mr. Jewell has given us the following report and description of them since the adjournment of the meeting:

The committee of the Horticultural Society arranged the Siberian apples in four classes—the first three with respect to hardiness and the fourth with reference to their special adaptation to cooking.

FIRST-CLASS - IRON-CLAD.

Early Strawberry—Tree a strong and handsome grower, bearing heavy crops alternate years.

Fruit, size and appearance of Transcendent, excellent for eating. Season, August.

2d. Orange—Tree a moderate grower and an annual and abundant bearer. Fruit larger than Transcendent, flesh firm, crisp, juicy and delicious. October to December.

3d. Beecher's Sweet—Tree vigorous and erect, a biennial and abundant bearer, fruit resembling in appearance the Transcendent, but larger, very pleasant for eating. September.

4th. Minnesota—A medium grower, with pale green leaves of unusual size, often becoming highly colored in autumn like the foliage of the sugar maple. Fruit larger than the Golden Russet, skin thin, nearly white, with beautiful blush on the sunny side. Quality excellent. December to February.

CLASS SECOND—EXTRA HARDY.

1. *Conical*—Tree vigorous and handsome, and a good bearer. Fruit is large as Transcendent, mellow, dry, and with a peculiar spicy flavor. In appearance and flavor resembling the Black Gilliflower. October.

2. *Maiden's Blush*—Tree medium grower, of slender, graceful habit. Fruit not quite as large as Transcendent, of pearl

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white color, with a beautiful red cheek, flesh tender, fine grained, with a peculiar pleasant flavor. December to January.

3. *Meader's Winter*—A handsome, strong growing productive tree. Fruit size of the last; excellent for eating. Season April and May.

4. *Hutchinson's Sweet*—Tree a good grower, with slender twigs; a moderate bearer. Fruit size of the last described; superior quality, keeping until April or May.

5. *Quaker Beauty*—A stronger grower than the Transcendent; a biennial bearer. Fruit large, handsome and of excellent quality. April to May.

CLASS THIRD—HARDY.

1. *Gen. Grant*—A vigorous, erect and symmetrical tree; an annual and profuse bearer, fruiting in dense clusters. Fruit very large, dark red, nearly black when ripe, and in quality much like the Duchess. October and November.

2. *Hesper Blush*—Tree among the handsomest, and a good bearer. Fruit a little smaller than the Gen. Grant; smooth, handsome, quality good. Season, November to January.

3. *Aiken's Striped Winter*—A fine tree, but the least hardy of the class; an annual and free bearer. Fruit good sized and valuable for either eating or cooking. Season, midwinter.

Class Four, except Green Winter, are too well known to need description. They are suitable for cooking and drying only.

A few additional facts in regard to these Siberian varieties may not be without interest. The first class is slightly more hardy than the second, but both are regarded as sufficiently so to warrant general planting The third class is less hardy than the two preceding, but will probably succeed in all but the most trying situations.

None of them are as orchard trees like the Transcendent badly given to blighting, except Meader's Winter and Gen. Grant.

In fruitfulness the several varieties differ greatly, but in the aggregate fruit younger and more profusely than the common kinds of apples.

For eating none are inferior to the Duchess, while several kinds are equal in this respect to any apple grown.

As a harvest fruit the Early Strawberry is more valuable than the Tetofsky, the fruit being as good in quality, and the tree more vigorous and hardy, and adapted to all kinds of soils.

The Orange is unquestionably more valuable for general

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cultivation than the Duchess of Oldenburg. The tree is even more hardy, not less productive, the fruit less perishable, lasting several months, and perfectly adapted to every use to which an apple can be applied—eating, cooking or the manufacture of cider.

As an early winter apple there are none of the common sorts, that have come to public notice, that in hardiness of tree, size, quality and beauty of fruit, are equal to the Minnesota, the largest of Siberian seedlings.

The only unsettled question on which the value of this variety measurably depends, is its productiveness.

P. A. JEWELL.

PEARS.

The next topic announced was Pears.

Mr. Fuller inquired if any member knew of any variety of pears, of bearing age, that endured last winter in this State. Said he did not like to give up the idea that they could be produced in Minnesota.

Mr. Harris said that he lost all of his, about fifty trees, of about ten varieties, but chiefly Flemish Beauty. Had heard of some trees in Houston county reported all right, but had examined them and they were no better than dead. Did not think it expedient for us to say much about raising pears.

A motion was made and carried to pass over this subject without recommending any variety.

PLUMS.

All varieties of tame plums have thus far been a failure in this State, never living to pay the first cost of the trees.

Moved by Mr. Ford, of St. Paul, and seconded by Mr. Harris, that we recommend for general cultivation only the best varieties known as native, or belonging to the wild order.

Carried.

CHERRIES.

Mr. Myers, of St. Peter, said he was cultivating a variety of cherry that he brought over from Germany, which with him and wherever tried had proved hardy, prolific and desirable. They are known as the Hartz Mountain cherry.

Col. Stevens said he had seen the cherries, and thought they were very valuable.

The President, T. M. Smith, said he considered this variety one of the best cherries he ever saw. He had on his place

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several other varieties, but the only other one of them that bore fruit was the Early Richmond grafted on the Black English Morella.

Mr. Carter, of St. Peter, is familiar with this cherry. Does not think that too much has been said in its praise. It is valuable, hardy, and a great acquisition to the fruits of Minnesota.

This variety of cherry was endorsed and recommended for cultivation.

Mr. Ford wanted to know if any one had trees under cultivation of the Lieb cherry.

Mr. Grimes had them, but could not speak understandingly of the merit of the fruit because the plants were too young.

Mr. Ford had heard considerable in its favor, and moved that the society recommend the Lieb cherry for trial.

The motion was agreed to.

Mr. Truman M. Smith said he had been successful with the Early Richmond cherry grafted on Morella stock, and moved that it be recommended for trial.

Carried.

GRAPES.

Mr. Ford moved that the list adopted last year be reindorsed by the society.

Carried.

(The varieties recommended at the last year's session were Concord and Delaware.)

Mr. Ford then suggested that the President (who has had an extensive experience in grape culture) recommend an addition to the list of three varieties for family use and three varieties for general cultivation.

This suggestion meeting with favor, the President was appointed a committee of one to prepare such lists and report in the evening.

Meeting adjourned until 7 P. M.

EVENING SESSION.

Meeting called to order by the President. Vice President Dartt then took the chair, while the President made the following report:

GENTLEMEN—For one individual to select a list of three or six varieties of grapes from the scores of candidates to be found in catalogues, and with even a greater variety of tastes to please, is a difficult undertaking.

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But I have considered the merits of the following, and submit them for your consideration:

1st List.—For Amateurs.

1. Croton. 2. Rogers' No. 4. 3. Rogers' No 15.

2d List.—For General Planting.

1. Creveling. 2. Martha. 3. Salem.

Report was received and adopted.

The Secretary read the following report from A. C. Hamilton:

CHICAGO, ILL., Jan. 19th, 1874.

To Minnesota Horticultural Society, at Minneapolis:

DEAR FRIENDS IN THE CAUSE:—I am very sorry I cannot be with you at your annual meeting, but I venture a word by way of writing you. I presume you will have one of the most interesting meetings we have ever had, for it being at Minneapolis, the *Banner City* of Minnesota, with all its hospitality, and with a people who are always in sympathy with horticultural and agricultural meetings, and for any real reform which is for the general good of Minnesota, I will say then I am heartily sorry I cannot be with you.

I will venture one thought, which will be wholly upon the subject of how trees should be set in Minnesota. The last winter has shown us that many of our trees have been killed, and even some of the most hardy ones. Many causes have been given. I will tell you my reason, and then tell my way of avoiding any future trouble from same cause. The trees were killed by extreme freezing in the early part of winter, and by the dry soil; not enough moisture to sustain the roots. I know a whole orchard garden that was saved in this way. Last August a year ago the man who owned the place raised his house about 15 to 20 inches higher than it had been. When this was done his grounds were not high enough, so he filled in the orchard so as to make it about the same in proportion to the house. The consequence was his trees were 15 to 20 inches lower down, so he filled up to the same proportion as he had raised the house. All were in good condition and made good growth—even a nice Flemish Beauty pear—while ten feet from there, almost everything was killed. Now the conclusion is, in my mind, that we had better set trees much deeper in the ground, so they will get more moisture, which the tree always needs. I hope this will be discussed freely. One more instance. I know a tree which stood near the back kitchen, down where all the slops from all the wash days had been thrown out all winter around the tree, and in spring the ice was more than 12 inches thick about it. This tree lived and fruited well, while the rest in garden nearly all died. This seems to be true, moisture is very much needed.

Minnesota has no winter rains to feed the trees upon. The tree needs this even in winter, or a certain moisture on the roots kept up. Chicago has rains, and I know it, for I saw some yesterday. Was any one ever in Chicago and not see it rain? But I see the trees look nice.

I will not use any more of your time. Hoping you will have one of the best meetings you have ever had, I am

Yours, very respectfully,

A. C. HAMILTON.

Moved that the report be received and placed on file to be embodied in the Transactions.

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Carried.

CURRANTS.

Were next in order.

Moved, that we recommend Red Dutch, White Dutch, White Grape and Victoria.

Passed without discussion.

GOOSEBERRIES.

Mr. Jewell moved to recommend Houghton's Seedling and Pale Red, for general cultivation.

The motion to recommend was lost.

BLACKBERRIES.

Mr. Loring said there is a blackberry growing on his place, without covering or protection, that does not winter-kill, called the Banton Seedling, from Vermont. It bore heavy last year.

Mr. Truman M. Smith said they were hardy, stout and good.

Col. Stevens said it is well known that they are hardy.

Mr. Brand moved, that we have no blackberries known to do sufficiently well here to recommend for cultivation.

Adopted.

STRAWBERRIES.

The Wilson's Albany was adopted for general cultivation.

Mr. Grimes moved that the Green Prolific be recommended for amateur cultivation as an abundant bearer.

Carried.

Mr. Harris said the Downer's Prolific was a good berry, and abundant bearer, and moved that it be recommended for general cultivation.

Adopted.

Charles Downing was spoken of as doing well on sandy soil; very vigorous grower, a little later in the season.

The Michigan Seedling and Charles Downing were recommended for trial.

WEALTHY APPLE.

Mr. Carter, of St. Peter, said he had voted to place the Wealthy apple on the list for general cultivation.

He would now move to reconsider the vote. The motion received a second and was carried.

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Mr. Harris moved that the Wealthy apple be recommended for trial.

Mr. Dart, of Owatonna, said his theory was to oppose recommending anything unless it was established that it had a permanent value.

He did not think this variety had been tested in many parts of the State. He knew the location of Mr. Gideon, of Excelsior, was a favorable one, more so than with him at Owatonna; as many failed as of the Ben Davis. He had a seedling which was a good winter fruit, and stood as well as the Wealthy. Thought it would come out about the same.

The Wealthy was taken from the first list and left for trial.

Mr. Dartt moved to place the Stewart's Sweet in the same list.

Motion lost.

The following resolution of the Kansas State Horticultural Society was read by the Secretary:

WHEREAS, The "American Pomological Society" is composed largely of men residing in the States east of the Mississippi Valley, consequently its meetings are generally held in some one of the Middle or Eastern States; its fruit lists are made up of varieties generally successful in said States, most of which are not adapted to the Western sections; and, believing that a co-operation of those States lying west of the Alleghany mountains, whose interests and experiments are allied, would result in great and important advantages to those concerned, therefore be it

Resolved, That the time, in our opinion, has fully come, and demands the organization of a "Western Pomological Congress," to be composed of the States above indicated. That the Secretary of our society be requested to correspond with the Secretaries of the various State Horticultural and Pomological Societies, with a view to effect such an organization.

Col. Stevens moved that the communication be accepted and referred to a committee of three, consisting of Messrs. Harris, Dartt and Nutting, with P. A. Jewell as alternate.

Carried.

Adjourned till 9 A. M. to-morrow.

THIRD DAY.

The President called the meeting to order, and the Secretary read the following communication from Bates & Northup, of Stockton, Winona county:

The year 1873 was quite a disastrous one to the horticulturists of our young State. We, with the rest, can say we saw many of our brightest hopes dashed away, but nevertheless we are not discouraged, but intend

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to still keep trying until we help demonstrate the fact, "We do raise fruit," the croakers to the contrary notwithstanding. We find that all kinds of our hardy apples suffered equally. They seem to root-kill, the cause we charge to lack of moisture in the soil, as in some instances in low moist spots the trees suffered very little. We lost some Duchess, Haas and Fameuse in nursery row, while in orchard they stood well. Two-year-old trees suffered the least. Our grapes suffered with other fruits; still Concord and Delaware are our favorites. We think they hurt before winter set in by early freezing. We look for good results in the hybridization of the apple by the crab, and think we can add to our hardy list by this method. Our trial of the Wealthy proves it to be very hardy; we never lost one tree of it. We have a seedling of the Yellow Bellflower, which we found growing on the farm of Mr. Burns, of this county, which has the appearance of being a cross of the Bellflower and the Yellow Siberian, the fruit being of the Bellflower type and the tree of the Siberian family. The original tree stood last winter and bore two and a half bushels of nice fruit the last summer. The few trees we had in our nursery row were not injured. We had specimens of the fruit saved, but unfortunately they got frozen, so we cannot present it as intended. We call it the Burns' Winter, as it is a good winter keeper, and shall at some future time present it to you for examination.

Accepted and ordered to be filed with the Transactions of this meeting.

A report was also read from E. P. Evans, Brownsville, Houston county, for the counties of Houston, Minn., and Vernon, Wisconsin. (See Reports and Miscellaneous Papers.)

PRESIDENT'S ADDRESS.

Gentlemen of the Minnesota State Horticultural Society:

The constitution of our society makes it my duty to deliver an annual address, but, fortunately, does not prescribe the length, breadth and depth of such an address, consequently I shall endeavor to make it as short as possible, knowing that brevity will be its chief ornament. Since we last met in council, one year ago, there have been many and great changes in regard to hardy fruits in the State of Minnesota, or the entire Northwest, and even extending over New England and the whole northern limit of fruit culture, and I apprehend that but few in this or any other society would to-day advocate as iron-clad or even hardy, what was considered one year ago as hardy as the oaks, or nearly so. The losses of 1872 and 1873 will long be remembered in Minnesota. But as heavy and severe as our losses were to individuals, myself not excepted, I firmly believe they will, in the end, prove a great blessing and save millions of dollars to our State in the future; for had it not have been for last winter's severity and losses coming just as we thought we had a list of trees capable of withstand-

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ing the rigors of our cold and dry climate, there would have been, this and the next season, millions of tender and half hardy trees, sold and spread broadcast over the length and breadth of our State, only to bring ruin and sorrow, instead of fruit, to the purchasers and planters.

Now, with last winter's experience and loss, all hope of fruit-growing is not gone; on the contrary, my faith in being yet able to not only raise a good and sufficient supply of apples has been strengthened, but I think the matter has become a certainty that there are varieties, and more will be found, that will stand and bear fruit even in our cold and dry climate; and that the rigors of last winter only blew off the chaff, so to speak, and saves us the wheat, and it also settles in my mind another problem which I have long contended for, viz.: to have perfectly hardy trees we must in every case graft or bud upon perfectly hardy stocks only, and in this I think lies more of the secret of success than many will admit. That the cause of the wide-spread ruin of the past winter was not due to the extreme cold many are willing to admit, but attribute it to some peculiarity of soil, climate or air, of which all disagree, or at least are not able to agree upon any one theory that can be satisfactorily explained, some claiming that the injury was done in spring or mid-winter, or in warm spells by the roots being too warm, or by the sap running by day and freezing by night, thus searing the cells and killing the trees. Others contend that the ground froze too deeply around the roots and stopped all circulation of sap in the roots, and thus killed the trees. My own views are that the hard freeze of November came so suddenly that the sap had not all returned to the roots, and the trees were not in as ripe a state as they should be for severe weather. But in support of this I will say that my Minor plums, which ripened up their wood very early in the fall of 1872, stood the last severe winter much better than the two preceding winters of 1871–2.

ENTOMOLOGY.

I shall not attempt to dictate any course of action or rules of business, but must be permitted to call your attention to several things which I deem worthy of consideration by your honorable body, and among the first of these is the importance of this society and the State Agricultural Society urging upon the State Legislature the appointment and providing for the payment of a State Entomologist. All would be astonished at the loss sustained to our young and growing State from insects alone. I have no doubt that our loss from this source alone is more than three times the amount of our State taxes. That

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the whole of this vast amount would be saved is not expected, but on the other hand, might we not expect, and with confidence, that a good and competent entomologist who could spend his time in studying our insects and the best methods of exterminating them and disseminating such knowledge, could save many times his salary in each year? Take for instance the potato bug, and how many hundreds of thousands of dollars' damage, if not millions, to our State has been done by this pest, and as entomology is a science, no man expects to make money out of it by his services unless in some way paid by the public. It is but just that he should be paid by the State, and the people of the State all receive the benefit.

CRANBERRY CULTURE.

Again I would call your attention to the subject of Cranberry culture, as one of vast importance to our State. Believing that we have many thousands of acres well situated for the cultivation of this, may I say, the best of all small fruits, I will say, without fear of contradiction, the most important of all small fruits, in a financial point of view. When we consider the fruit, when well ripened and perfectly handled, can be kept in its fresh state the year round, or longer, without canning or other expense; and again, if properly packed, it bears shipment to distant markets better than any other, and can be made to yield our State a large and steady income, as an article of export to distant markets. Even our wild fruit, picked from our marshes in their native state, has heretofore brought no small amounts of money to our State. This fruit improves by cultivation, and here as much as any other, if not more than most States. No one who saw the fine specimens of cultivated berries at our State Fair would really wish to produce the half-ripe and small wild fruit offered at our stores alongside of those cultivated.

VEGETABLE GARDENS.

Again permit me to call your attention to our vegetable gardens, which hitherto have received only neglect or a passing notice at your hands. This branch of horticulture is a very important one, and I hope will, as it deserves, receive your careful attention. The flowers, of course, will not be overlooked, as they are in constant demand from the cradle to the grave. Another item suggests itself to my mind, and that is the importance of

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HORTICULTURE AS AN ART,

and our duty in bringing it before the rising generation in our schools, academies and universities. It was the first art ever taught man. God himself, in His infinite wisdom, planted the first garden, and from that day to this it has been man's greatest and best blessing on this earth, and consequently should stand at the head of all other arts and sciences. The too common idea that to be a good gardener or horticulturist requires but little education and less brains, is a sentiment only fit for the dark ages, and is only entertained by those who know nothing of its first principles, as is also the idea that it is not an honorable or lucrative pursuit. Is not the name of Marshall P. Wilder known and honored as far and wide as that of U. S. Grant? Are not the names of Downing, Kincutt, Hooper, Wilson, Barry, Vick, Ellwanger, and hosts of others, household words among the enlightened and intelligent of this and other lands? and have not Hendersen, Paly, Ellwanger and Barry, Hoveys, Vick, Briggs and many others, demonstrated that horticulture, with capital and intelligence to guide and manage its affairs, can be made profitable? What trade or profession can we find that will run itself without brains or capital, and make a fortune for the men who pursue it? With knowledge, labor is capital. Again, what trade or profession offers as many inducements at the present time for young men and ladies as horticulture? I mean for men of intellect and energy. All other trades and professions are full to overflowing. But can there be found a supply of competent gardeners, fruit-growers or florists? and where is there a town or city among the inhabitants of the civilized portion of the globe, but what there is a demand for all the products of the horticulturist? His fruits, vegetables and flowers not only grace the table of kings, presidents, and nobility of the land, but the poor and the middle classes. Each and all come in for their share, and no highly civilized or enlightened community will be without them in abundance. They form a large part of the imports and exports of our commerce, and of the commerce and trade of all the civilized world. Now, this suggests another idea to me that, in view of the importance of our calling and profession, shall we always stand in the background and play "second fiddle," as the saying is, to horse-racing and herdsmen? I say not, and that horticulture is as far ahead of those callings as the enlightened countries on the globe, where horticulture flourishes, are ahead of the Arabs and the half-civilized tribes of Mexico and South America, where horse and cattle-raising form the chief occupation. Now, cannot we under our new constitution and our

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acts of incorporation, within the next two or three years, raise funds enough to purchase a lot or lots, and erect a fine building, and have a house and a hall for our meetings, and a place to hold our fairs and exhibitions, and have our fruit and flower shows at least twice in each year, and have our place for a distributing point of seeds, plants and horticultural implements. Look at the horticultural halls in Boston and Philadelphia. Are they not the pride of those cities? And does horticulture go a begging in Massachusetts, with her society worth over $2,000,000, and numbering among its members some of the best educated and noblest minds of that Commonwealth? I tell you, members of the Minnesota Horticultural Society, if you would have your society and your calling respected and exalted in the minds of others, you must respect and exalt it yourselves, with your hands, minds, and purses if necessary.

A vote of thanks was tendered, and a committee appointed to report in the afternoon upon its very striking suggestions.

Messrs. Moulton, Nutting and Jewell were the committee.

A communication from Peter M. Gideon, of Excelsior, was read. It was relative to the rejection from the horticultural report of his address on the "fast horse," and the toleration of horse-racing at State Fairs to the detriment of more interesting and worthy objects.

Moved that it be accepted and placed on file for future reference.

Moved that the reports of each day's proceedings be read and corrected the following morning.

Mr. Ford stated that his reasons for wishing this motion to pass was that last year the reports had made it appear that he had said entirely contrary to his views, and in that shape they had found their way into the volume of Transactions.

Motion carried.

The Secretary requested all members whose remarks were wrongly reported to notify him of the fact before the proceedings are compiled for publication.

Considerable discussion followed on the recent horticultural reports printed, and C. H. Clark moved, and was seconded by Mr. Harris, that we pass the following vote of thanks:

Resolved, That the thanks of this society are due, and are hereby heartily extended to the committee who have so laboriously, and from the scattered condition of the material, effected so satisfactory a compilation of our Transactions as appears in our first published volume.

Passed.

Moved by Mr. Jewell and seconded by Mr. Clark, that a committee be appointed by the chair for drafting rules and by-laws for the use of this society.

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Messrs. Jewell, Dartt and Clark were appointed as such committee, and were instructed to report in the afternoon.

The meeting then adjourned till afternoon.

AFTERNOON SESSION.

The committee to whom was referred the circular from the Kansas Horticultural Society submitted the following report:

We have carefully considered the resolution therein embodied, and the preamble to the same. It is true that in the past the American Pomological Society has been largely composed of men residing east of the Mississippi Valley, and its meetings have been held chiefly in the Eastern and Middle States; nevertheless, as its name implies, it is an American institution, and includes in its membership the best and most experienced men of the land. The doors are open to all, and the hand of welcome is extended to us of the Northwest. If we do not get an equal benefit in the places of meeting and the making up of fruit lists it is our own fault. Therefore, in our opinion, it would not be expedient to favor the organization of a Northwestern Pomological Congress, and that the Secretary of this society be instructed to reply to all official correspondence upon the subject, in accordance with this report.

J. S. Harris,
L. Nutting,
P. A. Jewell.

The report was accepted and adopted.

ELECTION OF OFFICERS.

The society then proceeded to the election of officers, and elected for President, Truman M. Smith, Esq., St. Paul.

The Vice Presidents being elected from members of each Congressional District, the election by ballot was suspended, and Messrs. E. H. S. Dartt, of Owatonna, for First District; Gen. Levi Nutting, of Faribault, Second District; and G. W. Fuller, of Litchfield, Third District, were elected Vice Presidents.

L. M. Ford, St. Paul, was elected Secretary; Amasa Stewart, Minneapolis, Treasurer; and Messrs. J. S. Harris, J. C. Fleischer, of St. Paul; P. A. Jewell, Lake City; O. F. Brand, Faribault, and J. T. Grimes, of Minneapolis, for Executive Committee, the President and Secretary elect being members ex officio.

The President, Col. J. H. Stevens, and Messrs. Gould, Moulton and Jewell were appointed delegates to the State

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Agricultural Society, which meets in St. Paul in February next.

Moved that $15 be paid the ex-Secretary for stationery and postage for the last year.

Carried.

Col. Stevens' bill of $47 for copies of the Farmers' Union of last year, containing horticultural reports, and for compiling the said reports for publication, was ordered to be paid.

Moved that the subject of regulating the premium list of the State Fair be left with the Executive Committee.

Carried.

Moved that the name of O. F. Brand be added to the Committee on By-laws, and report in the evening.

Co.. Stevens offered the following resolution:

Resolved, That the retiring Secretary, J. S. Harris, be empowered to prepare the proceedings of this meeting for publication and present them to the printer.

The committee on the President's address presented the following resolution:

Resolved, That we recommend that the able address of our worthy President be accepted and put on file, and that the numerous topics suggested by it be carefully considered.

That a committee of five be appointed by the President, whose duty shall be to solicit subscriptions of the citizens of Minneapolis and St. Paul for the purpose of purchasing property in one of these places to be used as the headquarters and permanent place of business of the State Horticultural Society.

Accepted and adopted.

The President appointed as such committee Messrs. C. M. Loring, Geo. A. Brackett and Wyman Elliott for Minneapolis, and Messrs. Truman M. Smith, J. H. Stewart and E. F. Drake for St. Paul, the President's name having been added, on motion.

The Secretary stated that there was a premium of $25 at the last State Fair for the best and most instructive report of viewing committee in the horticultural department, the award to be made by the State Horticultural Society, and that a very able report had been handed in to compete for the premium.

The reports being quite lengthy, it was moved that a committee of three be appointed to examine them and award the premium offered, and ascertain if there is anything in such report worthy of being incorporated in the Transactions of this society.

Dr. O. M. Humphreys and Messrs. Ford and Carter were appointed on the committee.

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Moved, that a committee of three be appointed to visit the State University and report to the society at its regular annual meeting next year what progress had been made in the horticultural department of that institution.

Messrs. G. W. Fuller, J. S. Harris and C. M. Loring were appointed as such committee.

This business having been disposed of, a motion was made to adopt the list of annual flowers recommended last year with the addition of the Morning Glory.

Considerable feeling was shown in the discussion of this motion, and a substitute for the motion was adopted as follows:

That a committee of three be appointed to present a list of annuals, hardy herbaceous plants, hardy shrubs, tender or half hardy shrubs, hardy and tender bulbs, and bedding plants.

Committee to report this evening.

W. Cannon and Messrs. Fleischer and Ford were appointed such committee.

Mr. Harris was added to the committee.

The society next proceeded to the discussion of

SHADE TREES.

On motion of Mr. Ford, it was changed to shade trees for streets and lawns.

The list of such trees recommended last year was adopted.

The list is as follows: White Elm, Basswood or Linden, White Ash, Box Elder or Ash Leaf Maple, Soft Maple, Rock Maple, Butternut, Black Walnut and Hackberry.

ORNAMENTAL TREES.

Moved, that the list of last year be adopted.

Carried.

Moved, that the European Larch and Kentucky Coffee Tree be added.

Carried.

The list recommended is as follows:

Mountain Ash, White Birch, European Larch and Kentucky Coffee Tree.

EVERGREENS.

Moved, that the list received last year be adopted.

Carried.

Mr. Ford said that the Norway Spruce stood at the head of the list; that it was not as hardy or good a tree as the White

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Spruce, and he would move to reverse their position and place the White Spruce first on the list.

The motion received a second, and a very interesting discussion followed.

Mr. Charles Hoag thought it judicious in arranging the different varieties of the list to be recommended, that care should be taken as to what kinds were placed first, that people might not be deceived in making their selections.

Mr. Clark expressed himself warmly in favor of the hardiness of the White Spruce, as being worthy of a first place in the list, in preference to the Norway Spruce, which was materially affected by severe winters. He referred to several fine Minneapolis gardens for specimens of the White Spruce, and intimated that nurserymen had so far entirely manipulated and controlled the action of this meeting in its recommendations as to confine their lists to stock they had to sell, and that amateurs, whose sole interest was to beautify and adorn, were not considered or consulted as to their opinion.

Mr. Jewell said that the Norway Spruce, each succeeding year, became more handsome, while the Balsam, as it advances in years, is liable to become imperfect, losing its lower limbs. The value of evergreens depends on this fact of increasing in beauty as they grow older, and tried by this test the Norway is a very valuable tree.

Col. Stevens said that at one time he purchased five Norway Spruce. After planting them out in early spring he was absent from home for a while. Upon his return he found the trees had shed their leaves *a la mode* deciduous style. Not knowing that an evergreen ever shed its leaves, he concluded that the trees were dead. He pulled up four of them and cast them over the fence. He tried to get up the fifth, but that was planted so deep that it resisted his efforts. Judge of his surprise afterwards when he found that the remaining tree had put forth a new foliage, and to-day his Norway was one of the most beautiful trees in his grounds. So much for Mr. Ford's idea that the Norway was not hardy.

Mr. Carter would vote for the Norway, as his experience with it warranted him in doing so.

The motion to place the White Spruce at the head of the list, instead of the Black Spruce, was lost, Mr. Ford voting for it.

The list of Evergreens, as adopted, stands:

1. Norway Spruce. 2. Austrian Pine. 3. Scotch Pine. 4. Balsam Fir. 5. American Arborvitæ. 6. American Black Spruce. 7. White Spruce. 8. Red Cedar, (when clipped.) 9. Siberian Arborvitæ, for small yards.

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The following resolution was then presented by Mr. Harris, and adopted:

Resolved, That all ladies residing in Minnesota, Wisconsin, or Iowa, who own or manage greenhouses, flower gardens or conservatories, without the aid of professional florists, and who shall forward their names to the Secretary, and donate an essay or paper on floriculture, in some one or more of its branches, shall be elected members of this society, and be entitled to reports of its Transactions, and all other privileges conferred upon members by the constitution.

The President said it was his object to give the ladies a prominent position in the society, as they deserved. He knew a lady that owned and managed a greenhouse herself and made it a success.

Mr. Peffer said the ladies of Wisconsin took a share in the proceedings of their society and furnished valuable essays and suggestions in horticulture.

Adjourned till evening.

EVENING SESSION.

President Smith in the chair.

The 21st topic in the order of business was taken up.

WHAT SOILS ARE BEST ADAPTED TO THE VARIOUS KINDS OF FRUIT, AND WHAT MANURES PROMOTE THE MOST HEALTHY GROWTH?

Mr. Dartt, of Owatonna, opened the discussion by saying that he thought sandy loam with clay sub-soil, and good natural drainage, was the best for apple trees. He did not think the aspect of so much importance as the soil; although in Wisconsin a northern exposure is thought to be preferable.

Mr. Harris said he endorsed what Mr. Dartt had said. He did not think the soil of Minnesota needed very heavy manuring. Our trees generally grow too fast and too late in the fall, but if the soil is too poor to give a fair, healthy growth, he thought barn-yard manure applied on the surface, just as winter sets in, the best fertilizer.

Mr. Fuller thought that good care and attention was of more importance than soil. Thought the ground generally selected not rich enough, especially for small fruits. Raspberries require deep, rich soil. to perfect large crops of good fruit, and the same is true of Currants. Strawberries do well on new land—sandy loam, without manure.

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Mr. Stewart wanted high ground for an orchard, with plenty of clay, and not too rich.

The President thought a northern slope with clay soil, and not rich, the best adapted to apple trees.

Mr. Dartt considered that barnyard manure with ashes is best for fruit trees, but would not manure land that is rich enough to bring a good crop of corn. On soil too rich he would throw aside the sub-soil from the holes and fill in rubbish or surface soil around the tree.

Mr. Jewell did not want manure for most varieties of apple trees, but for such trees as the Duchess and Tetofsky, which are of slow growth, manure would be of benefit; but for vigorous growing trees it is no benefit.

Mr. Peffer said that the soil should be well pulverized, and the ground should not be enriched to make a large growth. Trees should not be grown too fast in the nursery rows.

Mr. Clark thought that nurserymen prune their trees too much. His land is black sandy soil, with clay sub-soil. His theory was for cultivating in spring and mulching in June.

Mr. Jewell, as chairman of the committee on by-laws, presented the following code, which was adopted clause by clause:

BY-LAWS.

DUTIES OF OFFICERS.

1. It shall be the duty of the President to preside at all meetings of the society when present, and to deliver an address at the annual meeting of the same. In the absence of the President one of the Vice Presidents shall preside in his place.

2. The Secretary shall record all the doings of the society, collate and prepare all communications, &c., for the public press, and pay over all money received from members or otherwise to the Treasurer, on his receipt; shall receive and answer all communications addressed to the society; establish and maintain correspondence with all local, county, district and State Horticultural Societies, and secure, by exchange, their Transactions as far as possible; to aid the President, as an executive officer, in the dispatch of business relating to meetings of the society, and notices of horticultural and similar meetings of general interest, and report to the annual meeting of the society an abstract of the matter that has come into his possession, which shall become part of the Transactions for the current year, and shall be prepared by him for the public printer.

3. The Treasurer shall collect and hold all funds of the society, and pay out the same only on the order of the Secretary, countersigned by the President.

4. An Executive Committee of five shall be chosen annually, who shall, in connection with the President and Secretary (who shall be members ex officio), have in charge all matters pertaining to the interests of the society; shall revise all matter coming into the hands of the Secretary, and pass upon the same its approval before its submission to the annual meeting.

5. The Executive Committee may call a meeting of the society at any time and place they may deem advisable and for the interests of the society, giving at least thirty days' notice through the public press, and

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shall in no case incur any expense exceeding fifty dollars, except by authority of the vote of the society at its annual meeting, when the specific object and the amount so appropriated shall be designated.

6. The President, at each annual meeting of the society, or as soon thereafter as practicable, shall appoint a General Fruit Committee, consisting of one member from each Senatorial District in the State, and it shall be the duty of each member to report upon the fruit crop in his respective district annually; also, a limited list of fruits best adapted to general cultivation in the district which such member represents.

7. That committees on vegetables and market gardens, flowers and floriculture, trees for the forest and forest culture, and entomology, be appointed each year, whose duty it shall be to report on their several topics to this society at the annual meetings.

Mr. Wm. Cannon presented the report of the committee on varieties of flowers to be recommended for cultivation. The report was adopted. It is as follows:

ANNUALS.

Astors, Balsams, Candytuft, Catchfly, Caliopsis, Cockscomb, Escholtzia, Larkspur, Morning Glory, Morning Bride, Mignonette, Petunias, Phlox Drummondii, Portulacca, Sweet Peas, Sweet Alyssum, Whitlaria, Zinnias Elegans.

HARDY HERBACEOUS PLANTS.

Achillea, three varieties; Asclepias Tuberosa, Clematis, Erecta, two sorts; Columbines, Dielytria or Bleeding Heart, Delphinium or Double Larkspur, German Iris, Hollyhock, Lychnis and Japan Day Lillies, four varieties; Lily of the Valley, Pardanthus Chinensis or Blackberry Lily, Native Phloxes, Peonias, Pansies, Perennial Flax, Phloxes, May Pinks, Ledunis, Sweet Williams, Spireas, Tall Day Lilies.

HARDY SHRUBS.

Acacia or Moss Locust, Barberry (common and purple), Burning Bush (Wahoo), or Strawberry Bush, Buckthorn, Carrigana or Siberian Pea Tree, Cranberry, Yellow Flowering Currant, Charles the Tenth Lilac, Purple, White and Persian Lilacs, Lilac Josekia, Upright Honeysuckles (three kinds), Hyderangea Dentzalfolia, Hyderangea Boreii, Hyderangea Panicula.

DUTCH BULBS.

For Fall planting only— Hyacinths, Tulips, Crocus and Snowdrops.

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TENDER BULBS.

For Spring or Summer planting—Gladiolus, Cannas, Caladium Esculatum, Dahlias, Madeira Vine, Tigreda or Shell Flower, Tuberoses.

HARDY BULBS.

For Spring or Fall planting—Lilium Auratum, L. Candidum or old Garden Lily, Japan or Lancifolium Lilies, Tiger Lily and Native Lilies.

BEDDING PLANTS.

Achranthes, Alternantherus, Centaureas, Double Petunias, Feverfew, Zonale and Sweet-Scented Geraniums, Gazanias, Heliotropes, Lobelias, Lantanas, Pyrethrum (Golden Feather), Tea, Bourbon and Noisette Roses.

TENDER CLIMBERS.

Manriandis, Colea Scandens.

HARDY ROSES THAT NEED NO PROTECTION IN WINTER.

Yellow Harrison, White, Yellow and Pink Scotch Cinnamon Roses, Old Blush Rose, Sweet Brier.

ROSES THAT NEED PROTECTION.

Hybrids, Perpetuals, Moss Rose, Madam Planter (a fine white), George the Fourth, Russell's, College Centifolia (pink and white), Old Cabbage Roses, Tuscany Rose, Miralba, Monthly Cabbage, Old White.

CLIMBING ROSES THAT NEED COVERING.

Queen of the Prairies, Baltimore Belle, Seven Sisters, Gem of the Prairies.

TENDER SHRUBS THAT GENERALLY NEED PROTECTION IN WINTER.

Flowering Almond, Wigelas, Rosea and Alba, Spirea, Prunifolia and Billardin, Tree Peonia, Tamarisk Africana, Calicanthus, Purple Fringe or Smoke Tree, Deutzia, Gracalis and Crenato, Japan Quince, Celthra Alnifolia or Spice Bush, Deciduous Cypress.

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HARDY CLIMBERS.

American Ivy, Virginia Creeper, Celastrus, Scandens (Climbing Bitter Sweet), Clematis or Virgin Bower.

TENDER CLIMBERS.

Honeysuckle, Scarlet Trumpet, Yellow Monthly, Monthly, Fragrant and Parifolia, Chinese and American Wisteria.

After the adoption of the flower lists, the following resolution was offered and passed:

Resolved, That the thanks of this society are hereby tendered to John E. Booth, for his contribution of green-house plants and cut flowers that graced our table, and to Messrs. Stubbs and Hoyt of this State, and Mr. Peffer of Wisconsin, for their contributions of fruit.

It was also

Resolved, That we would urge upon our delegation in Congress to use all means in their power to secure the adoption of Mr. Dunnell's bill, with the amendment of Senator Freeman of Jackson county, allowing two quarters on each section instead of one, as provided by the act of March, 1873.

A motion was made and carried to adjourn till 9 A. M. to-morrow.

FOURTH DAY.

President Smith in the chair.

A resolution was offered and passed, that the President, retiring and incoming Secretaries, be authorized to act as a committee on publication, and be requested to revise all proceedings and communications that have come before the meeting, and reject all matters foreign to the objects of this society or too voluminous to be of general interest.

The following communication was read from the Secretary of the Wisconsin Horticultural Society:

MADISON, Wis., January 20, 1874.

John S. Harris, Secretary Minnesota Horticultural Society, Minneapolis, Minn.:

DEAR SIR:—In accordance with arrangement suggested by me and offered by you, I have this day shipped, by American M. U. Express Co.,

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fifty copies of the Wisconsin State Horticultural Society Transactions for 1873, and will be pleased to receive copies in exchange.

I regret that we are unable to be represented at your meeting by a large delegation, but hope this will not prevent the sending of delegates from your society to our meeting at Madison, February 3-5, of which a programme is enclosed. We anticipate an unusually important meeting.

In many respects Wisconsin and Minnesota have the same horticultural wants, and our experiences will be mutually advantageous.

The experiences of the last year—discouraging for the present—will ultimately do good. I look forward with entire confidence to successful fruit-growing in both the States in the future.

Let me express the hope that your society will not confine itself to fruit culture, important as this is. The cultivation of vegetables, of plants and flowers, are parts of horticulture, and should receive attention from our societies.

I regret that time has not been found to fulfill my partial promise to furnish a paper for your meeting. I can only say that there is here in Wisconsin a hopeful field for the future, a growing interest in the cause, an increasing number of local horticultural societies, and an increased interest in horticultural literature.

With best wishes,

Truly yours,

G. E. MORROW,

Recording Sec. Wis. State Hort. Society.

It was voted that this communication be received, and that copies of the Minnesota State Horticultural Society Proceedings be sent in exchange for those we had received.

The President moved that the retiring Secretary be elected a delegate to the Wisconsin State Horticultural Society in the meeting to be held February 3-5.

Carried.

The President made a brief address in which he said that he hoped that we would soon have a permanent fund for sustaining the State Horticultural Society upon a permanent basis. It is asking too much of delegates to spend their time and defray their own expenses in visiting other State meetings. We ought also to have a summer meeting, for the exhibition of fruits that cannot be exhibited at a winter meeting.

A communication was read and received from D. F. Kelly, of Northfield, Minn. (See Reports and Miscellaneous Papers.)

The President moved a vote of thanks to the citizens of Minneapolis, for their princely hospitality, and to the City Council for the use of their Chamber.

Mr. Harris seconded the motion, and said that it was well known that there was no better place for a Horticultural Convention, and no place in the Northwest where the horticultural interest was better represented than in this city.

The motion was carried unanimously.

L. M. Ford, chairman of the committee to award premiums on report of Viewing Committee, said the report on Flowers was an excellent one, and he hoped it would be published.

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REPORT OF COMMITTEE.

Your committee to whom was referred the report of the awarding committee of the horticultural department of the State Fair, made by W. H. Kelley and Wm. Cannon, would report that they have examined said report, and would recommend that it receive the premium offered by the State Agricultural Society; but as since our appointment there has been a standing committee appointed by this meeting to examine all documents with reference to publication, therefore this supercedes any action on our part with reference to that matter.

L. M. FORD,
F. G. CARTER.

The report was received and the Secretary instructed to notify the State Agricultural Society of the report made by the committee, and the action of the State Horticultural Society upon the same.

Resolved, on motion of L. M. Ford, that J. C. Fleischer be requested to hand in his essay on the "Cultivation of Roses" for publication.

Mr. Harris moved that Wm. Cannon be requested to hand in his essay on "Green houses, and Management by Amateurs." Carried.

Truman M. Smith moved to take up small fruits, and especially new varieties.

Mr. Harris inquired if any one knew anything of the Desota plum. He had understood that some trees had been sold in Minneapolis. A Mr. Hale, of Lansing, Iowa, is exhibiting bottled fruit of it and selling trees in Southern Minnesota. Says the trees commence fruiting at from two to three years old.

Col. Stevens said that he purchased ten trees of the Desota plum two years since; they were two years old and about three feet high; they bore last year, and he had about a peck of the finest native plums he ever saw. The trees were hardy with him. The fruit is larger and better than the Harrison plums.

Mr. Ford wished to know about the Minor plums.

Mr. Myers, of St. Peter, had trees seven years old; fruit very nice. Commenced to bear at six years old, and ripened with him.

Mr. Moulton said that he had had them since 1867. They had commenced bearing small green plums. Thought if the season was twice as long they might have got ripe. He thought they were small and inferior to most of our wild plums.

Mr. Carter said the Minor plum was very large, but thought he had some wild ones as good.

Mr. Smith had purchahed some from a nurseryman, but they were dead when received, and therefore he could not say they were not good. Same with Wild Goose.

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Mr. Howe said that he hoped the Minor plum would not be recommended. He had never seen any that were fit for use, and the trees are not hardy.

Col. Stevens had seen the Minor Plum, on Apple River, in Illinois. They were always infested with all kinds of insects. They are worthless for Minnesota.

W. J. Abernethy had seen and raised lots of Minor plums. They were large, handsome and of superior flavor. Thought his were genuine. They came from Galena.

Mr. Moulton said he thought we were cultivating two kinds of Minor plums.

Mr. Harris said he thought so too. He had never tried them, but they had been planted extensively at his place, and no one would speak a good word for them except they had trees to sell. However, to get the opinion of this meeting, he would move that it be recommended for general cultivation.

Motion lost.

Mr. Harris said he could not ignore such a decisive vote as had been given against the Minor, but he wanted *Plums*. Had tried Lombards, Egg, Sages, Damsons, and almost pverything that tree peddlers had to sell, and they had all eroved poor investments. Has heard of the Wild Goose plum, and would move that it be recommended for general cultivation.

Lost by a unanimous vote.

Mr. Smith, of St. Paul, moved to recommend the best varieties of the wild plum, which is found growing in our own State, for general cultivation.

Carried.

CRANBERRY CULTURE.

Mr. Dartt wished to say a word about Cranberries. They are a valuable fruit and can be grown on land which is worthless for anything else. Thought it would be better if we would spend less of the time in our meetings discussing apples and more upon other fruits, and wished to have this meeting appoint a committee to secure for the society the proper information on the subject.

Mr. Moulton moved that Mr. Dartt be appointed to write a brief essay on Cranberry Culture, to be read at the next annual meeting of this society.

Carried.

Col. Stevens moved that Mr. Myers give us an essay on Cherries for the next annual meeting.

Carried.

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Mr. Harris moved to instruct the incoming Secretary to secure an essay from the Professor of Botany at the State University.

Carried.

It was moved and seconded that all parties who had prepared or contemplated preparing essays and papers for this meeting be requested to hand them in or forward them to the Secretary in season to be incorporated in the transactions of this meeting.

Carried.

BLUEBERRIES AND HUCKLEBERRIES.

were then taken up and discussed at considerable length.

Some encouraging words were spoken for the Farmers' Union, and the fruit growers requested to write more for its columns; and Mr. Dartt moved and Mr. Carter seconded, to make the Farmers' Union the official organ of the society.

Carried.

The society then adjourned.

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MISCELLANEOUS PAPERS, REPORTS, &C.

[Under this head it is designed to arrange reports from individuals, local and county societies, correspondence and essays, that were handed in to come in the body of the proceedings. Here will be found the individual experience of fruit growers (who have not been in attendance at this meeting) from various parts of the State, and although they only corroborate the experience related in the body of the Transactions, the Secretary deems them worthy of a place in this volume.]

CULTIVATION OF ROSES IN THE OPEN GROUND.

BY J. C. FLEISCHER, ST. PAUL.

During the session of the State Horticultural Society, held in January, 1873, among other matters of general interest, the question was brought up whether roses, and what kinds of them, could be successfully cultivated in our climate.

Those who took part in the debate differed widely in opinion. Some—our President, Mr. Smith, for instance—contended that of three hundred varieties he had not found one capable of withstanding the rigors of our climate, while others, Mr. Ford among the number, recommended the planting of inferior sorts, such as Yellow Harrison, Cinnamon, Sweet Briar, etc., varieties which I would not like to give a prominent place in any well-cultivated garden under any circumstances. Others again, myself among the rest, believed then, as I still believe, that roses of a far superior quality to those recommended by Mr. Ford, may and can be cultivated to advantage, and this in the open air.

In making this assertion, I may be allowed to remark that the cultivation of roses has been a favorite pursuit and study of mine during the past twenty-five years, fifteen of which I passed in Northern and Southern Germany, and ten in Minnesota. Basing my opinion upon this experience, I will endeavor to impart what knowledge I may have gained, as it

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must be the wish of every real lover of flowers to see the rose cultivated in Minnesota to some advantage.

In this respect the florist in the Northwest has the same difficulties to overcome as his colleague, the fruit-grower. Both have to contend against severe cold, biting storms, &c. The fruit-grower is compelled to protect his pets by mulching, enwrapping, and other well known means. The florist must adopt similar measures, if he would be considered a faithful guardian of the tender "children of Flora" that may be entrusted to his care. If we can recommend and practice the cultivation of grapes, blackberries, raspberries and strawberries, neither of which can be successfully raised without protection against the severity of our climate, then there can be no good reason why the rose, that "queen of flowers," immortalized by Anacreon in the following stanza—

> "Rose! thou art the sweetest flower
> That ever drank the amber shower;
> Rose! thou art the fondest child
> Of dimpled spring, the wood nymph wild

should not receive equal attention, and it shoul
of pride to domicile this beautiful plant in ev
this great State, even if a little additional ca
required, although, in my opinion, no more th
upon the grape, &c.

Inasmuch as we are treating this subject with
cultivation of roses in the open ground only, it
that we should know the quality of

THE SOIL.

This should be highly cultivated, for although
grow in almost any kind of soil, the lack of rich
to decrease it in size and in the beauty of it
proper soil for the rose is strong, rich loam and
posed vegetable mould, cow or horse dung. If
light, holes must be dug and loam and dung for
bottom. Troublesome as this may be, it is the
secure a good growth and bloom. The evil of poor soil for the rose is, that it makes the flower that would otherwise be double come single or semi-double. As it is difficult to give the rose too rich a soil, it may be as well to work in a spadeful of dung with it, for it will do no harm, even if the state of the ground be ever so good. Of all soils one of a sandy or gravelly nature is the worst, while, on the other hand, a wet and dense clay is scarcely better. As a general principle, the rose requires rich soil, and if you have it not, you must

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change the nature of what you have, by means of dung, or loam, or both.

After the preparation of the soil, we begin with

PLANTING THE ROSE.

Roses may be planted in spring or in autumn. In our State the severity of the winter demands to plant, if planted in autumn, as early as possible, that the roots may take some hold on the soil before winter sets in. The first part of October is the best time. If planted in spring, plant as early as the soil is in working order, that is, as soon as it is dry enough not to adhere in lumps to the spade. In planting, the root must first be examined, and every particle of it that has been bruised should be cut off with a sharp knife, but save as many of the small fibers as possible. If the holes are dug large ıgh to take the root in without cramping it, let one put ıe plant and the other throw in the soil. By moving the ı backward and forward and pulling upward a little, it is to work the soil well between the roots. Instead of ding down, give plenty of water, so the soil will be firm ınd the roots. Be carful to keep the crown of the root r the surface of the ground. If you plant in spring, prune k to three, or even two good stems, at least half way to ground, but if you plant in autumn, lay this operation r until spring. Next to soil and planting,

PRUNING

the most important point of attention. If the plant is very shy, cut away all the weather branches, leave not more than ·ee or four of the best of the shoots, and shorten even those wn to a few eyes. If you wish the plant to continue dwarf l bushy, you may cut down to the last eye or two of the w wood, but leave no thin, half-grown shoots on at any e. If the plant is a matured bush, with numerous branches l pretty strong generally, shorten the new wood down to two eyes. After this it may be found that you have a great many more branches left on than you require, cut one-half of them close off. It may be, also, that the plant will be improved by cutting some of the main branches clear away, for roses, like everything else, are easily spoiled by leaving too much wood.

The most vigorous growers among roses are the climbers. These require very little pruning; first, because of their vigor, and secondly, because quantity rather than quality of bloom

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is asked for them. For all roses, it is the well ripened wood that bears the finest flowers.

One principle of pruning all roses will be: Weakly growing roses should be severely pruned; those of vigorous growth should be pruned but little.

COVERING.

In order to raise the better varieties of roses, especially the Hybrid Perpetual, it is advantageous to leave them in the ground during the winter. This, of course, cannot be done in Minnesota, without adequate covering. About the middle of November, a little sooner or later, as the state of the weather may permit, bend the bushes down upon the ground, and cover them well with earth to the depth of from six to twelve inches. To keep this so-formed hill of earth from thawing and freezing over again, it will be necessary to cover it with straw or old manure. In the spring, say at the latter part of April, when no further danger from heavy frost need be apprehended, the covering should be gradually taken off and the plants pruned in the manner above described. If this be conscientiously done, depend upon it the florist will be abundantly rewarded for all his pains in the sweet and beautiful display of flowers. In this manner I have succeeded in keeping the following named varieties in my garden at St. Paul, during the extraordinary cold winter of 1872-3, without even losing the smallest twig by the action of the frost: Augusta Mie, Baronne Provost, La Reine, L'Enfant du Mont Carmel, Jules Margottin, Triumphe de la Exposition, Souvenir de la Reine d'Angleterre, General Jaquemi-not, General Washington, Leon des Combats, Piux IX, Prince Albert, Lydonia, Jacques Laffitte, King of Prussia, Lord Raglan. Madame Plantiere, all of the Hybrid Perpetuals; also the Monthly Cabbage, the Centifolia Kubra Major and Centifolia Unita. Of Moss Roses, Blanche Perpetual, Alfred de Dalmas, Crested Moss, Captain Ingraham, and Comptesse de Murinars. Of Climbing Roses, Queen of the Prairies and the Baltimore Belle.

Even the more tender sorts, as for instance the Bourbon and Noisette roses, &c, can be thus kept through the winter with a little additional labor, thus: Cover the bed of roses, with good, dry oak leaves, to the depth of twelve inches. Do this before the advent of frost. After the frost put on a layer of straw over the leaves, and about six inches of earth, and in the spring when all danger of frost is past, the plants will be found perfectly green and sound.

I have endeavored, in the foregoing, to do at least a little

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towards imparting a better knowledge of the culture of a general favorite, whose nature, however, is not sufficiently understood by many, and if I shall have succeeded in interesting even a single lover of roses in working according to these directions, I shall be amply repaid, for success is sure to attend him.

REPORT OF THE COMMITTEE

Appointed to make awards in Classes 53, 54 *and* 55, *in the Floral Department at the State Fair, held in St. Paul, Sept.* 23, 24, 25 *and* 26, 1873, *to which was awarded a premium by the State Horticultural Society at their annual meeting Jan.* 20-23, 1874.

The committee appointed to make awards on Classes Nos. 53, 54 and 55, at the State Fair, respectfully report the following result of their labors.

The rules made by the Horticultural Society to govern the action of the committee, were as follows:

Exhibitors must have a separate and distinct quantity for each entry made.

Persons exhibiting plants for the largest and best collections, must exhibit them in one body or group, and none of such plants shall compete for any other premium.

In conformity with these rules, the committee have made made the following awards:

CLASS 53. FLOWERS AND PLANTS IN POTS—*Professional.*

Best and most tastefully arranged collection of green-house plants. Premium to J. C. Fleischer.

Second best. Premium to J. E. Booth.

Best and most tastefully arranged collection of hot-house plants. Premium to Lemke Bros.

Second best. Premium to A. Bunde.

Best collection of ornamental foliage plants. Premium to J. E. Booth.

Best collection of Cactus. Premium to J. C. Fleischer.

Best collection of Coleus. Premium to J. E. Booth.

Best plant in hanging basket. Premium to J. C. Fleischer.

Best 10 single geraniums in bloom. Premium to J. C. Fleischer.

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Best collection Tri-Color and Silver Edge geraniums. Premium to J. E. Booth.
Best 6 Fuschias in bloom. Premium to A. Bunde.
Best 3 Tuberoses in bloom. Premium to Lemke Bros.
Best collection of Roses in pots in bloom, not less than five varieties. 1st premium to J. C. Fleischer. 2d premium to Lemke Bros.
Best collection of Asters. Premium to J. C. Fleischer.
Best 5 Carnation Pinks. Premium to Lemke Bros.
Best Double Petunia. Premium to J. C. Fleischer.
Best 3 named Pansies in bloom. Premium to Wm. King.

CLASS 54. FLOWERS AND PLANTS IN POTS—*Flowers by Amateurs who employ Professional Gardeners.*

There were no exhibitors.

CLASS 55. FLORAL DESIGNS AND CUT FLOWERS—*For Professional Florists and all who employ Professional Gardeners.*

Best floral design, natural flowers and leaves. Premium to Lemke Bros. 2d best—no exhibitor.
Best arranged and greatest variety of Cut Flowers. Premium to Lemke Bros. 2d best premium to J. E. Booth.
Best arranged basket of hot-house Flowers. Premium to Lemke Bros.
Best pyramidal boquet of Annual Flowers. Premium to J. C. Booth.
Best flat-round boquet of green-house Flowers. Premium to Lemke Bros.
Best flat-round boquet of Annuals. Premium to J. E. Booth.
Best boquet of Everlasting Flowers. Premium to J. E. Booth.
Best and greatest collection of Roses. Premium to J. C. Fleischer.
Best and greatest collection of Pinks. Premium to J. C. Fleischer.
Best collection of Verbenas. Premium to J. E. Booth.
Best collection of Seedling Verbenas. Premium to E. Booth.
Best collection of Seedling Verbenas, 1873. Premium to J. E. Booth.

In awarding the premiums, the committee decided to judge on all the smaller contributions first. By this arrangement they were enabled to separate the plants, so that they would not receive more than one premium, and some of the contributors who had arranged their plants for the general effect of the whole, had very few plants left to compete for the high-

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est premium. The adoption of this plan left the committee with only the two largest contributions to decide between, and the decision was made for the greatest number, according to the rule above recited, as well as the best and most tastefully arranged collection. For these contributions were made by professionals, and the premiums were evidently offered to encourage florists to make the largest display of their productions. Of course somebody was disappointed with the award, and the acting members were sorry that some gentleman could not have been found to take the place of the absent member of the committee. To show much care was taken to give offense to no one, the Lemke Bros. had contributed a splendid boquet of what they had entered as annual flowers, but a couple of rose-buds put into the boquet gave the premium to an inferior collection of annuals by a competitor.

We can sympathize with the florist who loses in a contest for premiums. He without doubt loves his plants, for he has passed his life with them since they were tiny cuttings, and has watched over and guarded them from the many dangers to which they are subject, and when they are placed on exhition he is justly proud of their appearance; and although a professional may get hardened to his employment and lose the enthusiasm of an amateur, still the professional cannot be blamed for showing some feeling at any seeming slight to his pets.

The contributions to this department were not so numerous as at the fair of the previous year, but they were very fine in quality. A complete list would make some repetition, as certain kinds of plants were in the display of every contribution. The collection of Mr. Fleischer, to which was awarded the first premium, contained the following: Abutilon Mesopotamicum, A. Striatum, A. Venosum, A. Alba, A. Thomsonii, Achenia, Malvariscus, Acacia Lophantha, A. Augustifolia, A. Conspicua, Ardesia Crenulata, Asclepia Curasvicia, Azalia Indica, A. Phoenezia, Bouvardia Hogarth, B. Leiantha, B. Triphylla, Begonias in variety, Calla Ethiopica, Camelia Japonica in variety, Carnations, Cestrum Auranticum, Cuphea Emineus, Caladium Esculentum, Cytissus Racemosa, Cyclamen Persicum, Citrus, Diasma Alba, Euphorbia Splendens, Enonymus Japonica, Eupatorium Arboreum, E. Elegans, Echeveria Secunda, Ficus Elasticus, Fuschias, Geraniums, Habrothamnus Elegans, Heliotropes in variety, Hetrocentum Alba, Hydrangea Hortensis, H. fol. Aurea Variegata, Justicia Carnea, J. Purpurea, J. Purpurea fol. Variegata, Jasminum Undiflorum, J. Azoricum, J. Grandiflorum, Laurus Nobilis, Libonia Floribunda, Myrtus Communis, M. Sinensis, Nerium Splendens, N. Flora Alba, N. Bayonet, Oxalis Boweii, Pittos-

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porum Tobiva, Plumbago Capensis, P. Larpentæ, Rosmariuns Officinatis, Rubus Grandiflorus, Solanum Pseudo Capsicum, S. Pseudo fol. Variegata, Salvia Splendens, Stevia Serrata, Tuberoses, Veronica Andersonii, V. Lindlegana, V. Speciosa, V. Imperialis, Viola Odorata, Viburnum Laurestinus, Weigelia Amabilis, W. Amabilis fol. Variegata, Yucca Filimentoza.

PLANTS FOR HANGING BASKETS.

Geranium—Golden, Ivy Leaved, Balm variegata Ficus, Repens, Gazania Splendens, Panicum Variegatum, Isolepsis Gracilis, I. Pygmea, Kanega Maritima, Linaria Cymbalaria, L. Cymbalaria fol. Variegata, Lycopodiums in variety, Saxifraga Sarmentosa, S. Tricolor, Sedum Carneum, S. Seiboldii, S. Seiboldii fol. Variegata, Tradescantia Viridis, T. Discolor, Fragaria Indica, Vinca Major, V. Major fol. Variega, V. Major Elegantissima Aurea.

CLIMBING PLANTS.

Senecia Hederafolia, Vinca Major Variegata, Cobæa Scandens, Hedera Helix, H. Helix Fol. Variegata, Smilax, Hoya Carnosa, Jasminum Grandiflorum, Geranium Ivy-Leaved, Passiflora Cœrulea, P. Trifasciata.

ROSES—HYBRID PERPETUAL.

Sydonie, General Washington, Alfred Halphin, General Jaqueminot.

TEA ROSES.

La Pactole, La Vesure, Solfaterre, Devoniensis, Triomphe de Luxemburg, Lamaoyne, Soette.

NOISETTE ROSES.

Agrippina, Purple Crown.

BOURBON ROSES.

Triumph de la Ducherre, Souvenir de la Malmaison, Cytheria, Marquise Balbiona, Hermosa, Setina.

Mr. J. E. Booth received premiums on the following plants

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COLEUS.

Albert Victor, Beauty, Blumeii, Marvel, Princess Royal, Setting Sun, Vershaffeltii, Hendersonii, Banseii, Spangle.

ZONALE GERANIUMS.

Captain Darley, Cerise Unique, Commander-in-Chief, Defiance, Fire King, Giant Scarlet, General Grant, Hydrangeflora, King of Scarlet, Lady Turner, Madam Vaucher, Ossian, President, Perfectum, Symmetry, Spilfire, Tom Thumb.

GOLD AND SILVER VARIEGATED GERANIUMS.

Alma, Attraction, Brilliant, Brilliantissima, Countess of Warwick, Flower of the Day, Flower of Spring, Golden Vase, Golden Fleece, Italia Unita, Manglesii, Lady Cullum, Mountain of Snow, Madam Benyon, Mrs. Pollock, Quadricolor, Sunset, Silver Queen.

VERBENAS.

Boul de Niege, Peace, White Lady, Bridal Wreath, Blanche, Bird of Paradise, Ball of Fire, Brightness, Defiance, General Grant, Startler, Scarlet Circle, Sparkler, Santiago, Sunset, Welcome, Victor, Velvet Mantle, Celestial Blue, Mrs. Fairfield, Zula, Ada, Alhambra, Brunette, Blazing Star, Colossus, Cherry Ripe, Carolina, Clara, Claret Queen, Gettysburg, Harkaway, Gigantic, Lord Craven, Lieutenant General, Magnum Bonum, Moor, Mrs. Christie, Broemar, Charlie, Erebus, George Sterling, Star, Diana, Mrs. Veasy, Venus, Amazement, Dowager, Modesty, Melville, Pluto, Satanella, Mrs. McKay, Mrs. Brinckley, Elizabeth, Flirt, Princess Alexandria, Striata Perfecta.

In Mr. Booth's collection were the Ficus Elastica, Abutilon Thompsonii, Begonia Venusta, Salvia Splendens, Centaurea, Argentea, Hoya Carnosa, Passiflora Cœrulia and Vinca Variegata. The fountain in the center of Floral Hall was the design of Mr. Booth, and he had contributed the Calla Lilies and a Chinese Fern; the Pteris Serrulata, for its adornment.

Messrs. Lemke Bros.' collection of hot-house plants, to which was awarded the first premium, consisted of the following: Begonias in variety, Dracaena Australis, D. Terminalis, D. Rosea, D. Punctata, Eucharis Amazonica, Corypha Australis, Phoenix Dactylifera, Zabal Palmata, Euphorbia Pulcherina,

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E. Japonica, Pilia Sarpilifolia, Pepa Nobilis, Aspidistra Variegata, Hoya Carnosa Variegata, Centradenia Floribunda, C. Grandiflora, Pasistropea, Sanchesia Nobilis, Cissus Discolor, C. Argentia, Hibiscus Cooperii, Passiflora Trifasciata, Caladiums and Coleus in variety, Cyperus Variegata, Fittonia Argyronenra, Gymnostocia Nobilis, G. Vershaffelt, Peperomia Arifolia, Gesneria Zebrina, G. Frugans, Lycopodium Lepidophyllum, L. Argenta, L. Maperum Passicum, L. Cordyfolia, Blechnum Longifolium, Mepiornia Abiatilsa, Pteris Longifolia, Asplenium Divipasia, Lomaria Gibba, Pteris Alba Lineata, Nephrolepis Neglestum, Scolopendrium Vulgare, Gymnogramme Aurea, Pteris Tricolor, Panicum Variegata, P. Spitala, Pteris Serrulata, Bletia Tancaravilla, B. Onsedium, Cocolaba Plityclada.

Mr. A. Bunde was awarded the premium on the following fuschias: Annie, Anne Boleyn, Acubifolia, Bianca, Conspicua, Crown of Jewels, Duchess of Lancaster, Day Dream, Elm City, Garibaldi, Glory, Rose of Castile, Rose of Denmark, Sir Colin Campbell, Schiller, Spesiosa, White Lady.

Mr. Wm. King's collection was the smallest, but contained some of the finest plants on exhibition. His carnations were superior to any others, but they were only four in number. The premium required five plants. In his display were the following: Myrtus Communis, Cissus Discolor, Terrana Asiatica, Pteris Argyra Variegata, Isolepsis Gracilis, several varieties of Dracaena and trailing mosses.

It will be seen that no attempt has been made to give a full list of the plants of any contributor, and the small number mentioned must not be considered as any disparagement of the collection it applies to. Where all did so well, the committee would have had a hard duty to perform if rules had not been laid down for their guidance. It was a great pleasure to learn that the demand for flowers and plants is increasing in this community, and that florists are yearly adding to their resources to supply the demand. The love of flowers is almost universal, and the cultivated taste requires the choicest for its gratification. For the purposes of decoration we use them on every possible occasion, from the cradle to the grave. Our wives and daughters are more attractive to our eyes when we ornament them with beautiful flowers, and the pleasure to them is greater in proportion as the flowers are rare and choice. And in sickness when our friends remember us by sending or bringing their choice floral gifts, the great pleasure can be known only to those who have experienced it.

Before closing this report, two illustrations of the different ways that people look at plants may not be out of place. A lady friend who had been admiring the splendid display came

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to one of the committee and remarked, that her husband told her that he would wait and she could go and look at the weeds. When that gentleman's soul gets to the spirit land among eternal blooming roses and all the other beautiful flowers of Heaven—flowers that he can love and with the power to return his spirited caresses—perhaps then he will forget that he ever called the beautiful vegetation of this earth by the contemptible title of "weeds." How different must have been the thoughts of an old gentleman who examined minutely many of the plants, and at last remarked that he was reminded of what the Queen of Sheba said to King Solomon, "The half was not told me."

Respectfully submitted,

WM. H. KELLEY, } Committee.
WM. CANNON, }

REPORT OF THE HORTICULTURAL DEPARTMENT OF THE STATE FAIR.

BY THE SECRETARY OF THE STATE HORTICULTURAL SOCIETY, LA CRESCENT.

After reading the reports of the severity of last winter, which have appeared so frequently in the agricultural papers during the summer, I was most agreeably surprised with the exhibition made at the State Fair, September 23-26. Owing to a frost in May last, the fruit crop was not very large, and a severe drouth had prevailed in the southern part of the State, so that in size and appearance the fruit was not fully up to the standard of the two previous years; but the exhibition made was very creditable, and had a tendency to diffuse new hopes in the minds of those who witnessed it. The large stand in the west wing of Floral Hall was filled to overflowing with choice collections of apples and grapes. Commencing at the southeast corner we will give it a careful examination: First is Mr. Knapider's show of grapes, eighteen varieties, natives and Roger's Hybrids, all fine and well ripened, which draws the first premium for greatest number by one exhibitor; next to the west of him is a basket of Duchess of Oldenburg apples that for size and beauty of appearance cannot be beat this year or any other; a basket of St. Lawrence, several varieties of Siberians and a collection of native plums by Mr. Brainard. Above these is a splendid display of Siberians, by P. A. Jewell,

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of Lake City; all of them attracted attention by their beauty of appearance. Some of them were as large as Golden Russets; some varieties were delicious for eating from the hand, and all were excellent for cooking. Next are several varieties of hardy apples and Siberians, with a good assortment of native plums, by Mr. Brimhall, of St. Paul. Truman M. Smith, of St. Paul, who never does anything by halves, finishes out this side and a part of the west end with a grand display of grapes, Siberian apples, high-bush cranberries, &c. The remainder of the west end was filled up with fruit from Winona, by Mr. Clark and Mrs. Norman Buck, who also showed a plate of tame plums. Theirs were the best and most extensive collections of apples in the Non-professional Department.

On the northwest corner was a plate each of Tetofsky and Duchess of Oldenburg apples in fine condition, by Mr. Ramsden, who had learned the secret of making summer apples keep all winter. On the north end of the north side Mr. S. Bates, of Winona county, showed over twenty varieties of apples and several of grapes. He showed Netter's large red apples, of an enormous size and splendid appearance; they were raised by top grafting on the Transcendent crab, and by this process the trees went through the last winter without injury. Next was a plate of Concord grapes, shown by a St. Paul lady, that surpassed any of that variety on exhibition. Above these Mr. Hawkins showed eight varieties of standard apples of great excellence. Next to him was a display of native and Rogers' Hybrid grapes, by Rev. C. B. Shelden, of Excelsior, and thirteen varieties by Mr. Gould, of the same place. These two collections were remarkable for size of bunch and berry, and showed that the growers understand their business. The remainder of the north side was occupied with the magnificent collection of Moulton & Co.—apples and grapes so tastefully arranged that they were the most fascinating display in the Hall.

The east end was filled chiefly with a collection of twenty-six varieties of apples and several of the Siberians and eleven of grapes, from the garden of J. S. Harris, of Houston county. There were a few pears of enormous size, grown in California, and some from Virginia upon the stand, but none of Minnesota growth.

There were also several collections of apples and grapes in Railroad Hall, raised along the line of the Northern Pacific Railroad, and they were fully equal in appearance to those raised in the southern part of the State. The show of flowers in pots by professional florists was extensive, and showed a marked superiority over the exhibitions of previous years. The show of plants by amateurs was not large, probably owing

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to the cold and unfavorable state of the weather, but many of their plants were most skillfully grown.

The show of vegetables was large and fine, and on the whole the Horticultural Department of the Fair was a grand success.

The show of fruit tells to the world that the fruit-growers have nailed their flag to the mast, and will not surrender until the last apple tree is dead and no seed can be procured from which to raise more. The flowers speak of our Minnesota as the home of those who love and cherish the good and the beautiful.

JOHN S. HARRIS,
Superintendent of Division H.

CONSTRUCTION AND MANAGEMENT OF GREEN-HOUSES FOR AMATEURS.

BY WILLIAM CANNON, MINNEAPOLIS.

To those who wish to extend the cultivation of flowers, beyond the use of annuals, it is necessary to have a green-house, if only a modest affair; and the house most suitable for amateur florists is the span-roofed. It should be sheltered from the north and run north and south, so as to receive the greatest amount of sun in the winter. It is best to grow good shaped plants, and the easiest to attend their daily wants.

A good house can be built by having a wall of brick twelve inches thick and four feet high for the sides; brick up the ends, having one door in the north end, and having a wood shed and work-room for your furnace at the entrance. Have the rafters of sufficient depth to admit the use of double sash in winter, also to cover with canvas or light board shutters on very cold nights, as it is much better to retain heat than to continually keep up the supply by extra fuel.

An excess of artificial heat is injurious to plant life, and our usual mode of heating (by furnace) too dry, unless care is taken to avoid it by sprinkling or by water placed upon the flue.

The cheapest mode of heating is by a brick furnace, about fifteen inches wide and high, and long enough to admit four foot wood. The fire will burn better if you have a grate, but it is not absolutely necessary. The furnace should be two thicknesses of brick (for the inner one fire-brick are the most

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desirable.) The flue should be six inches wide at the base and top, and for the sides place bricks on edge and plaster upon the inside, the whole passing round the house with a gradual ascent from the furnace to the chimney.

To those not having the means to build an expensive house, a wooden frame building will answer every purpose, if care is taken to make it tight and secure from frost; but as a rule avoid cheap buildings for a green-house, for they will become dear enough in the end. Use only the best materials and those of the most durable kinds, as the alterations of temperature and constant moisture speedily affect the best timber, and the poor material will soon be rendered useless by dampness and decay.

In stocking your house, take first all those well known (although old) and reliable, as trying to cultivate store and green-house plants together will only end in disappointment.

For shading from the sun use whitewash, in which a handful of salt has been mixed, and apply to the roof on the outside. This is durable enough to last all summer.

SOIL.

For all plants usually grown in the green-house (especially soft wooded plants) use loam, leaf mould and sand, and a little rotten manure, well mixed together. Such soil will remain loose and porous.

POTS.

Use only the common flower pots, as they are more porous, and the plants will thrive better in them than in glazed ones, of either glass or china, or fancy painted pots.

POTTING.

So much has been said and written upon this point about drainage that it is hard to determine in every case what is best. My experience has been to dispense with potsherds for drainage (using the coarse soil only) in all pots less than four inches wide. Care should be taken to have the soil pressed firmly about the roots by a few sharp raps upon the bench, always leaving sufficient room for watering. Care should also be used to avoid having plants in too large pots, as the soil becomes sour and the plants become sickly by so doing. Always protect fresh potted plants from the sun for a short time.

WATERING PLANTS.

Watering is one of the most important duties in successful

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plant growing. The best time to water plants is at sunrise or at evening, and use rain water if at hand. My experience favors a thorough soaking when dry, as plants slightly watered every day often perish. Water may be given at the root at any time, but not sprinkled over the leaves in a hot sun, as it will blister and spoil the foliage. Cold water, before being applied to a heated soil, should be exposed to the sun for a few hours.

INSECTS.

The green fly is one of the most troublesome insects that infest green-houses. Fumigate with tobacco about once a week, either morning or evening, never during the day while the sun shines, as it will injure the foliage.

Red spider can be avoided by keeping the house moderately damp, but care should be taken not to have it damp enough to cause mildew upon the plants or in the house.

In conclusion, allow me to say that gardening is the most ancient of all arts. An occupation so ancient and so full of pleasure and profit to man is entitled to respect, and is worthy of the devotion of all who have control over even the smallest portion of "mother earth."

There is no one, whether it be the merchant absorbed in the duties of his office, or the mechanic engaged in his laborious art, or the housewife encumbered with domestic cares, who would not be better for the change of employment in body and mind which an hour or two devoted daily to gardening would afford. Flowers are nature's holiday garb, and to all lovers of nature and art have become an indispensable luxury. In the cultivation of flowers, each one can indulge their peculiar fancy, and each one's character will represent itself in the taste indulged. The motives for the cultivation of flowers are as various as the tastes of mankind. They are the simplest and least expensive ornaments of the homestead, imparting an air of taste and comfort and awakening dreams of beauty, especially in the minds of children, that will never fade from memory.

Flowers abundantly compensate those who cultivate them by the associations to which they conduce. They are socializing in their tendency. The flower garden diffuses pleasure beyond its own precincts, and gladdens other hearts than those of its possessor.

> "Bright gems of earth, in which perchance we see
> What Eden was, what Paradise may be."

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REPORT OF LAST YEAR'S EXPERIENCE IN FRUIT GROWING IN MINNESOTA.

BY M. C. BUNNELL, MONEY CREEK.

Last year proved a severe one on a great many varieties of standards; not only in this State but in other States they suffered to a greater or less extent. Being a dealer in trees in Minnesota, I have had a very good opportunity to learn the opinions of others interested in getting orchards. Some are inclined to think it is a poor investment to buy standards in this country, and nothing but crabs will prove a success, while others think it is not best to give up yet, but replace with hardy varieties.

Minnesota is not alone in this misfortune, consequently we should take new courage and replant with good hardy varieties. I find that there are but a few who refuse to try it again. To be sure we have been disappointed in varieties that we termed hardy previous to the winter of 1873, but nevertheless I think those same varieties are going to produce fruit here in abundance some years. Because they injured last winter is no indication that they can't be fruited here.

We may not get another such winter for the next generation, and I find that a great many others take the same view. Farmers might say that, because certain products of their farm proved a total failure one year, they would never try the same crop again, on the same principle that we would discard the idea of raising standard apples in Minnesota because the trees killed in 1873. The success of raising fruit in this State I attribute to the soil, also location. I believe that the soil as it becomes older is better adapted to the standard apple. The tree gets a slower growth, it ripens up better in the fall, therefore stands the winter better. Some have more favorable locations than others, north and east, which I consider the best where trees can be kept back in the spring and the sap not allowed to start too soon.

I find that the Duchess has given general satisfaction, also Tetofsky. In some locations the Fameuse stood very well; more fault found with the Ben Davis than any other varieties that have been recommended for cultivation. I observe that orchards on high ridge land came through much better than

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on the low ground. Banking up around the trees with earth in the fall before it freezes is a great protection to them through the winter. I have learned that by practical experience. Would advise those who want orchards for profit not to set too many varieties, but take pains in selecting hardy varieties, and plant largely of those.

The Haas and Walbridge should have a fair test. Saxton, I think, will stand in all ordinary winters.

One cannot expect to be successful in getting an orchard without he gives it proper attention. And I don't know why it is not for the farmer's interest to spend a portion of his time in horticultural improvements as well as in making other improvements.

Faith and works go together. If one has faith that he can grow an orchard, and goes to work to do it, he is pretty sure to meet with success.

FLOWERS.

BY J. S. HARRIS, LA CRESCENT.

An essay read before the State Horticultural Society, at the summer meeting held in Minneapolis, July 4th, 1872.

LADIES AND GENTLEMEN :—Although I have been an enthusiastic lover of flowers from my earliest childhood, and fully realize that earth possesses no greater charms than a little flower garden all one's own, I feel very forcibly my inability to do anything like justice to a subject which the sweetest of poets have lauded to the skies and the ablest pens have essayed upon—a subject which points us back to a "Paradise Lost" and urges us a Paradise to regain.

Floriculture shuts out the darkness of sin and lifts the veil to refreshing bowers, luxurious verdure, pure crystal streams and breezes that waft out upon a fallen world the sweets of fragrance, the spices of life.

The cultivation of flowers, whether it be the tiny plant in the cracked cup of the poor man's cottage or the stately palm, or other tropical glories in palatial gardens and crystal palaces, is wielding an influence to elevate the human race which no one to-night can tell, no pen describe.

It is calculated to engage the intellect, and open fields of inexhaustible treasure which the longest life is far too short

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to fully explore, and will forever be replete with animating discoveries of new beauties. To stand upon an eminence in the midst of a beautiful landscape, to behold the "king of day," after having cheered a world with light, life and warmth, as he sinks beneath the horizon, touching up the tree tops, rocks, hills and threatening clouds with lights and shadows, is glorious.

It is a glimpse into paradise, a foretaste of the bliss of heaven. The first is like the passing away of the life of a good man, the last like the beginning of the life of glad childhood. Leigh Hunt says: "Flowers sweeten the air, rejoice the eye, link you with nature and innocence, and are something to love. If they cannot love you in return they cannot hate you; cannot utter hateful words, even if neglected, for though they are all beauty they possess no vanity."

Rand, in his "Flowers for Parlor and Garden," says: "The love of flowers is universal. It is an old melody which, first attuned in earliest time in the golden age of legendry lore, has come down to us, growing more mellow and sweeter as it chimed through the centuries, and now as then echoes with a music akin to that of heaven in the human heart."

I will say, in addition to Leigh Hunt, that flowers sweeten the disposition, lighten the burden of toil, and soothe sorrow; and I will agree with Mr. Rand that the love of flowers is nearly universal where civilization has reached, and the love ought to be encouraged by every friend of mankind. But the degree of this love is as varied as the individuals of the human race.

Flowers add very much to the attractions of a home; they hide deformities and cover imperfections; they fill up the depressions and round the sharp angles that would otherwise be painful to the cultivated taste. It is not the grandest architecture, the latticed casements and marble pillars that adorn the palatial residences upon the grandest avenues of our American cities that attracts the notice of the travelers, so much as the sweet fragrance of brilliant flowers and the rich hues of trailing vines that adorn, drape and embower them. Rich and gaudy clothing may attract the attention from the plain face, but the humble flowers will be seen before the most stupendous works of man.

It is difficult for me to tell you what flowers to plant, and what selection to make from the scores of thousands that have been brought into cultivation. The varieties of flowers have been so much improved within the last twenty years, and many rare gems added to our collections, while their cultivation, especially as house plants, has been greatly simplified. But probably in no class has there been so great improvement

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as in what are usually termed bedding plants. As this class of plants is best adapted to the wants of the people universal, I will devote the remainder of the time allotted me to mentioning a few of the most common and easily procured. As commonly used, the term "bedding" is given to such plants as in winter require the protection of the green-house, but which, if planted in the garden, bloom profusely during the summer. Some of them may be raised from the seeds, as annuals, and will bloom profusely in the autumn; but generally the best results are secured by raising them from cuttings in the early spring.

First of all, I will mention the Geranium. I love them, the name is so sweet, the flowers so bright, the foliage so pleasing. They are well known, and the old Fish and Rose-scented were favorites in the days of our childhood. Great improvements are yearly being made in the varieties, and they are all rapidly growing in popularity. They are brilliant and continuous in flowering, and a mixture of varieties form a bed of great beauty and elegance; but perhaps the best results are obtained from planting in groups or masses of single colors. There are several classes of them, but for our purpose the Zonale and Sweet-scented are the best. Of the Zonale, I would recommend the President and Gen. Grant for scarlet; Rival and Regalia for rose; Blue Bell and King of Pinks for pink; Clorie de Carbony and Bridesmaid for salmon; Emily, Vaucher and Snowball for white; the Rose and Lemon-scented for fragrance and for leaves to use in the formation of boquets.

Next in order will come the Verbenas, which give the garden a gay and lively appearance. They are probably cultivated more than any other variety of plants, and they are all that can be desired for quantity and variety of bloom. They may be grown each year from seed, but are now sold so low by all florists that it is more economical to purchase plants of the desired colors, as many of the seedlings will prove inferior and are later coming into bloom. It is hardly worth while to enumerate the names of varieties, as those which are considered standard this year will give place to others in the next. Many new candidates are brought out each year.

Heliotropes fill important places among bedding plants. They are desirable for their fragrance, as well as for their profusion of flowers of various shades of blue and lilac. They propagate readily from cuttings, but old plants give the most flowers.

Of the Salvias, the Salvia Splendens is the most gaudy, and in fact of all autumn blooming plants the most desirable. The small plant purchased of the florist in the spring, becomes a beautiful bush by September, three or four feet high, and

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covered with tassels of the brightest scarlet flowers. They are, however, very tender, and will be entirely destroyed by the first frost. They may be grown as an annual by sowing the seed in a hot-bed.

Among the "Feverfews," the double white "Feverfew" is indispensable in the smallest collection of flowers, as it blooms freely throughout the whole summer and is so very useful in the formation of boquets.

If time would permit I should love to speak of roses, pinks, dahlias, fuchias, pelargoniums, and hosts of other favorites; but I must refer you to the splendid exhibition which the ladies and gardeners of Minneapolis have arranged so tastefully in this hall; and I must confess that my greatest help in this, my first attempt in essaying, came from witnessing a gorgeous sunset while passing through Lake Pepin as the last rays fell upon the famous Maiden Rock, and my visit to this hall.

In conclusion, I advise every lady to grow flowers and make Paradises to sweeten their lives. And do not be satisfied with growing them. Set them on your table, a whole boquet if you have it; if not, a single flower, a rose, a pink, a violet, or a geranium leaf, the best and sweetest that you have, to remind you of the elegance of nature's productions, the glories of creation and the bliss of heaven. Give them freely to the children of the poor, and plant them where they may gladden other eyes than your own. This is a blessed world if we would make it so.

REPORT OF O. D. STORR, WINSTED LAKE, IN REPLY TO CIRCULAR OF THE SECRETARY.

1. I have about thirty-five different varieties of apples, among which are the Duchess, Haas, Ben Davis, Tetofsky, Red Astrachan, Perry Russet, Tallman Sweeting, Sweet Pear, Saxton or Fall Stripe, Wealthy, Morrison's Treasure, Julia, Bellflower, Walbridge, Black Vandivere and several others, also many varieties of crabs.

The first eleven varieties are three and four years old, trees planted out two years ago, all froze more or less. Morrison's or Shakopee, injured the least, only three or four inches late fall growth; Wealthy, one-half the tree killed, Julia killed to the snow line. The others killed half-way down, others to the

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snow. These were yearlings set out last October. (I suppose this refers to the Shakopee and other new varieties.)

2. I have only one variety that has come through without injury to either trunk or branches, and that is a seedling called the Winsted Seedling. Ben Davis killed back from three to six inches. Red Astrachan, some dead, and others in the same row not injured. Tallman Sweeting, the tips of last year's growth frozen; trunk and branches all right. Haas, the trunk is killed close to the ground; the tips but very slightly injured. Sweet Pear, dead root and branch. Duchess, Minnesota grown, not injured; Illinois and Wisconsin trees killed back.

3. None but the crab varieties are bearing except the Winsted, that is budding all right.

4. My soil is a black clay loam, with clay subsoil, mixed with lime, on the south bank of lake, and slopes to the north; no protection. Last year, part in wheat, part in potatoes and garden vegetables; this year all in corn.

5. I have one seedling tree that is worthy of note, that is in bearing. Since it first came from the seed it has never killed back a bud. The fruit is a little larger than the Duchess; smooth yellow skin and a good keeper; will keep until March or April; a very pleasant sour, fine-grained and rich flavor. It has never had any protection from cold or sun. The fruit ripens the last of September, and it will more than fill the place of any Russet.

6th, 7th and 8th. None.

Plums—I had the Lombard, Miner and Richland Purple. The Lombard killed to the root, were five years old and froze each winter. Miners and Richlands all right.

REPORT OF E. P. EVANS, BROWNSVILLE, FOR HOUSTON CO., MINN., AND VERNON CO., WIS.

I have examined a great many orchards in both of the above counties since June 1st, and find the trees ranging in hardiness as follows: First, Siberians; second, Red Astrachan; third, Duchess of Oldenburg; fourth, Fameuse (snow); fifth, Golden Russet; sixth, Tallman Sweet; seventh, Haas and Ben Davis. But very few trees of Rawhey's Jannet, Northern Spy, Autumn Strawberry, Perry Russet, Fall Stripe and Fall Winesap, that have been set from four to ten years, will ever bear any more fruit. Full 60 per cent. of the old orchard

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trees are dead. Orchards in sod have done better than those cultivated. Orchards sowed to grain or corn did better than those planted to potatoes. Orchards taking free blast of north and west winds are better than those sheltered by belts of timber. The injury is mostly in the body and roots. Considerable damage was done in the crotches of low-top trees. Twenty per cent. of our Transcendent and Hyslop crabs died from root killing, and consequently I think our *ironclads* are very scarce, unless grafted on the Siberian roots.

Of pears, cherries and plums, scarce 6 per cent. are alive, except of the Miner plum. It has done about as well as the native.

Vernon county, Wis., comes out about 30 per cent. better than Houston county, Minn. The above counties are separated by the Mississippi river; soil and climate as near alike as possible. I think the difference is in the varieties planted. In Vernon county they planted mostly of the *ironclads*, such as the first seven varieties mentioned above, while Houston county planted of whatever tree peddlers happened to bring along.

I was like a great many others who did not approve of Charles Waters' method of cultivating orchards, viz., plowing between the rows and leaving full stretch of the tree's branches to sod, but his orchard proves that his theory is right. It is the healthiest and best of over a hundred that I have seen this summer.

There are three seedling apple trees in Vernon county that are worthy of note. One grown by C. S. Sterton, this year's growth eight to twelve inches, bearing a few apples. Another was grown by Mr. Weitz, growth this year six to ten inches, bearing about five or six bushels this year. This is a splendid market apple. It bore its first apples the fourth year from seed, a half bushel the next year, and a heavy crop every year since, and last year ten bushels.

The third by Mr. Yeely, good market apple, vigorous healthy tree.

REPORT OF D. F. KELLEY, NORTHFIELD.

Regretting my inability to attend your session this week, I send you a brief report of the condition of my orchard since last winter.

The winter made sad havoc with my seedlings, of which I

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had about one hundred in bearing, the majority of them from eight to ten inches in diameter. One-third of them are "dead as a smelt." Another third are more or less damaged. The balance are all right, though they did not bear very profusely last season.

I have gathered 150 bushels of apples from these trees in one year, and previous to last winter had considered the trees perfectly hardy. In the spring of 1872 I set about 3,000 root grafts, the scions of which were mostly taken from these trees. They came out last spring in very good condition, and, although they did not make a very large growth last season, appear to be healthy.

The early fall apples came through the best. Those producing sweet and winter fruit suffered the most.

I am not wholly discouraged with reference to raising apples in Minnesota, as are some of my neighbors, though I must say my faith is somewhat shaken.

REPORT OF BARNETT TAYLOR, FORESTVILLE.

About fourteen years ago, I saw in the American Agriculturist the enquiry of J. S. Harris, of La Crescent, Minn., as to the best way to start a fruit garden. About that time, without experience, health or money, I commenced the same business with the determination to raise fruit in Minnesota. Will state my success by stating the fact, that last year I had 27 varieties of splendid apples, with fine pears, plums and other kinds of fruits; some trees yielding $10 per tree, and of course things looked bright. You know without my telling it how things are changed this year; although my experience differs from yours, as you state in the Farmers' Union that your Sweet Pear and Haas are but slightly injured; my Sweet Pear are about done for; Haas some entirely dead; all badly injured. Early Harvest, Northern Spy, Sam Bough, and Primate in same condition; Sops of Wine and Perry Russet badly hurt; Duchess 8 or 10 trees killed in the roots. but the rest of the Duchess, 50 to 75 trees, in fine condition, Tetofsky all right, and strange to relate, Grimes' Golden wintered without the loss of a bud. Early Richmond cherries unhurt. Flemish Beauty pears slightly damaged. The encouraging fact is, that all hardy kinds where well mulched or shaded are but little hurt.

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All kinds on clean ground killed more or less. I set an orchard one, two and three years ago for a neighbor, on high prairie, cultivation corn. The stocks stand over winter; every tree came through splendid..

CRYSTAL LAKE, June 16, 1873.

To Secretary State Minnesota Horticultural Society:

DEAR SIR:—I noticed in the Farmer's Union of May 24th, a circular from the State Horticultural Society, with the following caption: "Information wanted." Believing it to be the right course for us to pursue, and being somewhat interested in fruit culture, I propose to give my mite of experience, and if we all do the same we can come to some conclusion as to what fruit it will do to cultivate and what not. I feel disposed to differ from you in regard to our winter. You state that "the winter set in early and dry, and frost penetrated to a great depth before any snow fell." That might have been with you, but not with me. To be sure the winter set in early, on the night of the 12th or 13th of November, with several inches of snow and no frost, and we kept having snow storms before the ground froze any; and that is just what played the mischief. It was the absence of frost and not its presence that has caused so much mischief, and I think that if we had removed the snow from under the trees and let the frost penetrate down to its usual depth, and then mulched to keep the frost in we should have had quite a different result. I think that our trees were *spring killed* and not *winter killed.* Our hot sun in March caused the sap to flow to the tops of the trees, and then it turned cold and froze, and that is what has killed our fruit trees. I came to this conclusion from the following reason: I had a piece of land about 1 1-2 acres that I planted to potatoes. On planting that piece this spring I plowed up perhaps a bushel of potatoes as sound and handsome as any potatoes that I ever dug in any time of the year. They eat as well as those that I kept in the cellar. I have planted the same piece this spring and the best potatoes that I have on the piece are those that came up themselves, and are budded to blossom.

Now sir, we all know that when the frost penetrates to a great depth in Minnesota that potatoes will not stand the test.

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The piece that I had reference to is on an eastern slope—the same result out on the prairie where the snow had drifted.

And now to your questions.

1. I have the following varieties of five year old trees, Transcendent, Hyslop, Soulard, Red Astrachan, Stewart's No. 7 (Honey Sweet.) Stewart's No. 7 is the only apple tree that I have but what has been more or less affected, I never have mulched it summer or winter, and it never has killed in root, branch or bud to my knowledge. The same tree has stood on the prairie beside the Tetofsky, Transcendent, Hyslop and Soulard; all others have been more or less injured, but No. 7 is all right, I do not know anything about the fruit; my trees are bearing this season for the first time.

I purchased some trees of the following varieties (three years old), Gen. Grant, Akin's Green Winter—both killed to the ground—also, Ben Davis and Perry Russet. The two last are so badly killed that I consider them no better than dead. The Haas and Fameuse, of the same age, also Alexander in our neighborhood have killed; Duchess, of several years bearing, killed and badly injured.

Nos. 2 and 3 I have answered in No. 1, *i. e.* Stewart's No. 7.

4. Sandy loam, clay subsoil; edge of prairie and bluff land.

5. I have no seedlings of my own. Have been propagating from about 50 varieties of our hardiest Hennepin county seedling, which we have considered perfectly hardy, have been more or less injured.

6. I am propagating from a seedling pear tree that has never killed unless this winter. Have not been informed how the tree is this spring.

7 and 8. We are cultivating Wilson's Seedling, Agriculturist and Scarlet are the principle ones cultivated.

Plums—I have none except choice natives, and if any one has got any that are better I would like to get some.

Cherries—I purchased several trees several years ago of the Morello Cherry; they are about four inches through, and killed last winter. Have some of the Early Richmond, injured considerably.

I have about eight or ten thousand seedling apple trees, one and two years old; I think I can select about 50 that have not killed a bud, that stood beside the following varieties that killed down to the snow: Ben Davis, Fameuse, Densmore, Morrison's Treasure and a host of others equally hardy.

J. H. WHITE.

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REPORT OF J. H. THOMAS, YOUNG AMERICA, MINN.

As my business will not permit me to attend the Horticultural Society I will here state some of my experience with fruit-growing the past year. I have had some trees killed within the last year. Apples—Transcendent and Duchess of Oldenburg, were the only kinds that were not injured; Soulard, Hyslop, Haas and Tetofsky, lightly hurt; Ben Davis, Perry Russet and Tallman Sweet, all killed, Flemish Beauty Pear, killed to within one foot of ground.

My grape vines were all buried with earth about two inches deep. The Delaware came out best, and fruited well; Clinton next best; Franklin next; Roger's Hybrid No. 15 killed. Salem, Iowa, Logan, Martha and Isabella, killed root and branch; Hartford Prolific and Concord, all of the vines killed; they made good growth during the summer. I have four kinds without names that went through in good condition, one is short wood, leaf five-lobed, and lighter color than any I have. It ripened about the last of August, and is a better grape than the Concord, but not so large. The next best is a white or yellow grape, that came to me for an Isabella, and the next is a blue grape, size of the Clinton, leaf and young wood, color light yellow, came for Golden Clinton, but the fruit is of a wrong color; Eumelian and Maderia too young to fruit, but the vines went through in good condition.

Small fruits, currants, &c., did not fruit heavily, and some twigs were killed. The gooseberry fruited heavy, and was not hurt, while the raspberry, Davis, Thorn, Doolittle and Blackcap, fruited well, with no protection and but little care.

My soil is black loam, about 12 to 14 inches deep, with yellow clay subsoil. It was formerly covered with oak timber, with a few elm and bass-wood undergrowth, hickory and some hazel brush.

REPORT OF G. A. PERLEY, WASIOJA, DODGE CO., MINN.

Having read a communication in the Farmer's Union, from the Secretary, in reference to the coming meeting of the State

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Horticultural Society, and wishing to cast in my mite for so good an occasion, I venture to send a little of my experience, to be disposed of as may be seen fit.

In the year 1865, my first year in Minnesota, we bought $100 worth of apple trees from a nursery in Rochester, N. Y., twenty of which trees were dwarfs. The balance of several varieties, called hardy, were healed in in the fall of 1865. In the spring of 1866 we set them out in rich black soil, with a slight mixture of sand. This soil was too feet deep, with a subsoil of yellow clay. This land would be called low or bottom land, sloping to the south. About one-half of the dwarfs died that summer, and in the fall of 1867 there were but three of them alive, and they in a sickly condition. The other trees, when bought, were from four to six feet in height The winters of 1867 and 1868 were severe on them, and the mice, too, wished to help along the matter of destruction, as they had girdled thirty. The summer of 1868 showed that they were struck with death. The pocket gophers, not wishing to slight me showed what they could do, as they had cut off a great number of the large roots of the live trees, and in 1870, there was not one left out of the entire number.

Not wishing to give up the undertaking, I concluded to try another plan, and in the fall of 1871 I planted some seeds from the Snow and Maiden Blush apples, grown in this latitude in Wisconsin. These seeds were planted on sloping ground, on the north side of a few rows of cottonwoods four years old, the first row being six feet from the cottonwoods, the others four feet each from this, all the rows running east and west. In the fall I counted 200 trees. As the winter of 1872-3 was so severe I did not expect any of them would survive it, as I had cultivated them pretty thoroughly. In digging them up this last fall I found but thirty of the two hundred had died.

I should think there were about six varieties, some quite wild-like, being thorny and small, while others had but few limbs, a dark glossy bark, and were three feet in height; others again were of a yellowish-green bark, two and a half feet tall. These had to be watched with care during the latter part of summer to prevent their being destroyed by a worm from one-half to three-fourths of an inch in length, and in color resembling the bark and the green leaf of a tree, on which it would feed until every leaf was devoured.

Perhaps you may wish to know my plan for setting out some more in the spring. I intend to dig out the holes for them three feet in diameter, two feet in depth, and twelve by sixteen feet apart, on an eastern slope of black loam. These holes I shall line and partially fill with the refuse stone and

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soil of a limestone quarry; on the top of this and immediately under the tree I shall place a thin flat stone; over this I will set the tree, with black loam. The flat stone will prevent the roots from running down into the cold, wet soil, and the refuse stone will cause a slow but hardy growth. In this manner, and by trapping the pocket gophers and a careful watching of the mice, I hope for success, and will give the result in the future.

REPORT OF W. B. SMITH, OWATONNA.

Secretary Minnesota Horticultural Society:

DEAR SIR.—I am pleased with the course you are taking to get information in regard to fruit growing in this State, and will contribute my mite.

1st. I have about 175 trees of apples and crabs that have been set from one to six years. The apples are Duchess, Tetofsky and Ben Davis.

2d. The Duchess and Tetofsky came through the winter without injury.

4th. My soil is clay and gravel; have mulched and hoed until this year; have seeded it down this year. Have timber protection all around. Some have commenced bearing.

7th. Wilson's strawberry is the best here. I have some cherry trees taken from the roots of an old tree, that are doing well; some blossomed this year, May 1873.

FOREST TREE CULTURE.

BY GEO. P. PEFFER, PEWAUKEE, WISCONSIN.

In the Pantagraph, (Bloomington, Ill.,) there is an article headed "Forest Preservation," wherein the writer mentions that the government should reserve our woodlands, and only sell the timber, and enact laws to protect it, so that the timber can grow up again for future generations, as our forests in a short time will all be gone, etc., and refers to the European laws on forests. [Please insert the Minnesota or U. S. laws on forest tree planting]. As I have some recollection

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about the laws and the reproduction of the European forests, I will give them if this paper should not prove too long.

I think, if our laws are adhered to, they are just right, and if our timber then gets scarce, many a farmer, at least in our section of country, can grow all he needs, and if of a speculative nature, will raise it to sell, and make it profitable, as there is a large quantity of poor and waste lands to be had very cheap, which can be planted or preserved by the owners, and make forest tree timber-growing profitable, which timber will increase in value from year to year, until it is worth as much, or more, than improved farming lands without the timber. If rich land can be afforded to grow timber, all the better, as it will grow faster, and for mechanical purposes will be worth more, as the layers of the new wood growth will be larger and of greater strength than slower grown timber.

But before I get into the details I will remark that fire and cattle have to be kept out for a number of years. On land, either in openings or where the timber has been cut off, or where fire has run over the forest, new seedlings will spring up again naturally, as there are generally live roots and dormant forest seeds left in the ground, which will spring up again; but if nothing of the timber kind should spring up, we have to assist nature and sow the seed of such forest trees as will be best adapted to the soil, and supply the places by artificial means.

For instance, on very poor, sandy lands, where it is rich enough to grow grass, timber seeds will grow; but if the soil is so dry that no grass can grow, it will be an uphill business unless water can be supplied. But on the very poorest land we have seen in this State (nearly dry sand,) the white birch will grow; or on moist sand, tamarack or larch, and if these should get large enough to shade the ground other timber seeds will grow, if sown so as to be in the shade, where they grow naturally. Pines are at home on sandy soil, but to start a pine forest, other tree seeds should be sown and grown to produce the shade required for them. If they are to be grown from the seed, and even where small seedlings are set out, shade they must have.

I have seen all kinds of land and timber lately, on my first visit westward to your State, Minnesota, and was surprised to see so much poor, sandy land between here and there, and also the variations of the soil by the growths of the different kinds of timber, bushes and plants, as we swept along by rail. Some appeared to be so poor that a sheep would starve to death in the month of June in a ten acre lot. Still there was always something growing on the surface, in the wood line,

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which could be advantageously cultivated for profit, if not for timber.

The cranberry is at home on low marshes, and grows on land that is wet three-quarters of the year. If that sort of land is improved and drained to some extent, and that crop does not pay, tamarack seeds will grow if the water is drained in early spring, and in a very short time will be a forest, if the fire is kept out. Next we find the whortleberry, or low bush blueberry; next, the high bush black whortleberry; next are willows of various kinds; next, the red swamp birch and alder. On a little drier soil, yellow birch, tamarack or larch, check or pin oak, white birch and black pine. These must have shelter when young. Next we find bur oak, black oak, poplar, hazel, black cherry, and occasionally choke cherry. When we get where there are running streams, and where the wet had kept out the fire and preserved the underbrush and young seedling trees, we find swamp or white elm, black ash, yellow birch, red, sugar and ash-leaf maple, rock and red or slippery elms, and upon places, cottonwood, poplar and butternut; also, white oak, where the land gets better; pitch or Norway pine, and white pine, and in rare places red cedar, and in swamps white cedar, hemlock, balsam, and white and black spruces on a little drier soils.

All these different varieties of wood, trees, bushes and vines can be raised with profit, if a man with a determined mind and good judgment takes it in hand to do so. For instance, to grow forest trees on sandy soils, when there is substance enough to have a covering of grass to hold the ground or sods together, so as to make ridges that will withstand the rains and wind for one season without washing or blowing away by the wind, we shall commence with the seeds of the white birch, as that is about the only tree seed that will stand drift-sands, and washings and drouths. If the ridges are made with the plow or spade they should always be east and west, say from three to five feet apart, and the seedlings will be best always on the north side of these ridges, as a little shade is secured on that side, and as soon as they get well started and a year or two old, so as to make more shade, other varieties of evergreens, tree seeds, and tamarack or European larch, can be sown broadcast.

American larch or tamaracks will do best where quite wet; so will white cedar, balsam fir and hemlock, but the spruces and pines of the different varieties of our native sorts, also the Austrian, Scotch and Rocky Mountain, will do the best on drier and sandy soils; but all the evergreen tree seeds require shade the first two or three years, or until the roots have pen-

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etrated deep enough to get moisture to sustain life during the dry and the freezing season.

If there should not be grass enough to hold the ridges required to start the white birches, grass seeds, or weeds, or grain of some kind, might be sown to afford shade enough to get the birch seedlings started. In some parts of Europe, where land had been abandoned for centuries on account of barrenness and drouths, and nothing could be grown on them, the government employed poor laborers and skillful naturalists to direct the laborer, in growing forests again, and they have succeeded in re-wooding and renovating the valleys that had been depopulated. At first, the work was carrying clay on side hills and slopes, and depositing it in holes, and watering to start vegetation and tree seeds, and by following it up year after year have now succeeded in covering the hills with timber and the valleys with fruit and grain; as they have now more dew and rain, and the government gets well paid for the undertaking.

If any one will observe the condition of the land, and is acquainted with the climate, and knows one variety of tree from the other, he soon can have a forest. He must undertake it understandingly, and select varieties suited to the soil. In this part of the State, where there are many openings, many good pieces or young groves of timber are now seen where twenty or twenty-five years ago nothing but prairie grass and hazel bushes, and a few oak grubs were seen; as the fires always burned everything down from year to year until the land was taken up and cultivation began; then the fires ceased. Now, many farmers have their fire-wood just from thinning these groves, and the timber is growing from year to year more profitable.

We saw in some of our newspapers an article going the rounds in which the writer sets down the destruction of our pine forests at seventeen years hence, and the hard wood at a few years later, in this State; but if we should commence planting or caring for our timber lots now, no such fear would be necessary, for any of us here sees the groves of oak of from 20 to 30 years growth, to be quite large already, many trees large enough for fence posts and other purposes.

If agricultural enterprise should be awakened to this subject, and artificial forests should be planted, they would be more profitable, as they grow much faster than the groves already mentioned.

Trees grown for the wood and shelter on rich bottom lands and prairies, will be needed in a short time to assist the new beginner. First of all, the sod has to be broken, or turned up in ridges, east and west, about three to five feet apart, accord-

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ing to the size of the plow, and if soft wood is wanted it can be raised from cuttings if they are stuck very early, and the land must either have been made ready late in the fall or early in the spring; but if little seedling trees are planted, and kept back, as in a dormant state, late planting is also successful. They should be stuck or planted close to the north side of the ridge, two to three or four feet apart in the rows, and kept clean of weeds for a few years.

Cottonwood, Lombardy poplar, balm of Gilead, red and white willow, and the like, all grow readily from the cuttings. They should be about eight to twelve inches long, and so stuck that only one eye is above ground, and in a very short time they will be a forest. In the fourth year thinning out has to be begun, and kept up, so as to let sunshine in, or the trees will not thrive, and many would die; but if one-half are cut out in the fourth and fifth year, wood enough can already be saved to do the cooking on any ordinary farm, if the grove is one-eighth of an eighty acre lot, and in a few years more will supply all that is necessary, and if one-twentieth part of the trees should be standing for twenty years enough firewood could be cut, and be of as much value as if the land had been sown with grain, and the cost of raising it deducted.

But as such a lot could be planted with more useful timber, small seedling forest trees should be procured, such as white ash, shell bark hickory, white oak, black oak and butternut, black locust, red elm and the like; also different kinds of maple, all of which would be more valuable than soft wood, and pay a larger profit for the better varieties planted. If these little trees should be planted every third or fourth row, or in every eighth row, and the soft timber cut out from time to time, it would pay still better, as there would be more leaves for mulch, and the hard wood trees would be straighter and better for mechanical purposes. I have in mind a white oak tree standing in a fence corner, and the fields are mostly cultivated, that has gained in twenty years seventeen and a half inches in diameter. A Norway spruce thirteen years planted is twelve inches in diameter, and is thirty-six feet high; a cottonwood twenty-three years from the cutting, six feet from the ground, measures eight feet three inches in circumference; Lombardy poplar, thirteen years from cuttings, is two feet and over, and fifty feet high; black walnut, twenty years the nut planted where it stands, no cultivation, is fifteen inches in diameter. But enough of this.

FOREST TREE CULTURE IN GERMANY.

In my native country (New Bavaria, Germany,) the forests are all owned by village corporations, counties or States,

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and foresters are employed by the government for five, ten or twenty years, as the case may be. These men have to see that no damage is done to the growing trees, to see to the new plantations and to the cutting of the old forests; to the gathering of the seeds, whenever it is the proper time to do so; also to take care of them until they are planted. Each forester has to oversee from 500 to 1,000 acres, which is owned and used generation after generation for forest culture Whenever a piece is cut down (which is decided on by the trustees of the village, county or State, year after year,) the best timber is used for mechanical purposes, and the balance for firewood. All the government officers and public schools and the town poor are furnished a certain amount free. Then, if there is more cut than is needed for the use of the corporation, it is disposed of at public auction.

When the wood is all cleared off, the land is laid off like a village or town, into lots of from one-quarter to one-half an acre, and is sold at auction for the term of three years. The lot with the most stumps on it brings the highest price, as they are all grubbed out for firewood, and by this means the land is subsoiled or trenched. Those that buy for the wood only, sell or lease these lots again to farmers or planters that will raise grain, roots or garden products; and they generally manure very highly the first year, in order to make it more profitable. There are many families that have no property but these lots, and upon them they depend for subsistence.

The third year root crops are grown, and then the lots are again re-planted with forest seeds. If of rich, heavy clay soils, acorns, beach or white ash are planted. If of sandy or light soils, aspen, birch, blue beech or alder seeds are sown and in a few years pines or spruce are sown or transplanted. On the last-named soils, in our district, mostly white oaks were planted, as there was an oak orchard of about 15 to 20 acres, that furnished sufficient acorns annually to plant 1,000 acres. Lands that had ash and birch forests, when cleared off were re-planted with oak and beech, and that of the oak with ash, beech, or any sort that had not been grown on them before.

The nursery of new plantations were planted by the taxpayers or burghers, the same as our road taxes are worked here, and the forester is the overseer. As before stated, the land for the new plantation had for the last crop roots, such as potatoes, beets and turnips in rows, and the furrows left after gathering the crop in the fall were used early in the spring to plant the acorns or other seeds in. If too shallow, the hoe was used to make furrows, and the seeds covered one or two inches deep. After the seed had come up, and were a

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a good stand, some of the poor people were permitted to grow a row of potatoes or bush-beans between them, for the purpose of keeping the tree rows clean of weeds and to transplant the little plants where they had failed. The second year no cultivation is done, except to keep the large weeds and grass out. On sandy land evergreens are set out, if there are vacancies.

After the second year all is left to nature. No grass, weeds, or dead forest leaves are allowed to be taken off from the new plantations for at least five or six years, when the first thinning is gone through with, and all crooked, deformed and dry trees removed, all in a day or two. This is about the only time the forester must have help to oversee, so that none are cut that will be of other use than firewood. As it belongs to the burghers to do this job, there is generally a large crowd, as all turn out that can on this occasion. After a day or two no one is allowed to cut or trim wood or brush for the next two or more years. In the older plantations it is allowable to get the dry limbs and sticks, and the limbs that grow downwards, or interfere with each other. In this way many people have to obtain their firewood, particularly those that are not on the town poor list, as they are not able to purchase it; or if they do buy, do so to have it in cold weather, when the women and children cannot go out to gather it.

I suppose many of you wonder why the Germans from villages or small towns carry their loads on their heads, and why they gather dry brush around their homes in this country. It is because they have been accustomed to it from childhood; and they can make a quick fire and cook a meal of victuals while they set the table.

There are heavy fines and imprisonment imposed for cutting down or girdling or removing little trees or dry leaves from any of the groves, without permission from the forester or trustees, and many a forester has been maimed and sometimes killed in attempting to arrest parties trespassing on these forests.

In old evergreen forests the large trees only are removed, and if large vacancies occur, burghers have to make ridges with grub hoe and spade and remove the surface soil, leaves and rubbish into small piles, when evergreen seeds are sown broadcast and left alone, as these places are mostly shaded. They will nearly all be covered with young plants, and grow up again for future generations.

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